Gleanings in Bee Culture

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What Are Their Eyes for, Then?

By W. J. H. Dicks
University of British Columbia

We are told in the bee books that bees have three simple eyes on top of the head "ocelli", which are directed upwards. At each side of the head they have a compound eye composed of many "facets" which are directed towards the left and right respectively. These eyes do not move as the eyes of an animal do, nor do they close.

To my observation, bees do not see at all in the sense of getting a picture of things in mind, an image. **We** see **them** as small creatures about an inch long with two pairs of wings, three pairs of legs, and three-striped abdomens. But do **they** see the beekeeper as **he** is—a huge shapeless creature, each of which looks different and smells different, too (tobacco, soap, B. O.)?

Opening up a hive during a warm day with a honey flow on, the bees take no notice of us. We say to ourselves that they are too busy bringing in honey and so that is WHY. On a dull damp day, the bees will fly angrily out at us and try to sting us. We say that is because it is cold and no honey is coming in, and that is WHY.

But—

If on this cold damp day, we move very very slowly, taking the hive top off slowly, moving our hands to the frames slowly, and taking out the frames slowly, very slowly, the bees will pay no attention at all. The degree of slowness is exasperating; it is very difficult to continue moving our hands so slowly for so long a time. But the fact remains that the whole hive can be taken apart and put together again without annoying a single bee.

I have done this.

The compound eyes are made up of thousands of facets like the rear reflector of an automobile or a bicycle. Such an eye will not be able to distinguish an object exactly, but it will easily detect it if the object moves, even ever so slightly or ever so fast. If, however, the object moves very slowly, the movement is not noticed. The bees do not see it.

It appears then that the ocelli do not get an image of an object close at hand.

The compound eyes of a drone consist of many more facets than those of a worker. The appearance of a virgin queen in flight is only a trifle different to that of a worker, but such eyes will be able to tell the difference. Of course, there are thousands of other insects on the

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wing which are of a different appearance from a worker, but sexual attraction helps the selection.

Compound eyes, therefore, enable the presence of annoyances to be distinguished at once, such as the beekeeper, or the presence of danger such as predatory birds and other insects, both near at hand and at a distance.

However, the question of whether the bees distinguish the colors of flowers from which the nectar comes has been studied over and over again. All the bees in a hive do not all work the same source at the same time for we see many different colors of pollen being brought in at once, especially in dandelion, fruit bloom, and maple time: oranges, yellows, whites, blues, and browns. This suggests that there are, at this time of year, many flowers in keen competition with each other for pollination service. Also while the alfalfa is in bloom the bees work that almost exclusively, but there is every color of bloom in such a field, all the way from white to yellow to mauve to dark purple; yet all the pollen is the same color. This suggests that the bees can get an easier, bigger, and more dependable load from this source than from any other source at this time. Like us, they prefer the big money.

Some writers claim that the ocelli distinguish colors. The sense of smell nevertheless seems to be the determining factor in locating a source of nectar, because, although the flowers may be in bloom, there is no scent until the secretion of nectar starts. Color is not even truth in advertising.

Inside a hive, all is in darkness. The queen, always in darkness, still manages to find her way about even after months of this, when an animal in similar circumstances would lose its sense of sight. The antennae doubtless are the means whereby the inmates find their way out, up and down, across, on and out of cells, in and out of the hive. The workers in the height of the season spend more time in daylight than in darkness; on the Coast they fly all the year around almost. In interior climates, though, they are confined to the hive during the winter for maybe five months in total darkness; even then the young bees that have wintered through are able to fly outdoors in the early spring and find a living for the first batch of brood. They are too young and lacking in experience to distinguish the source of nectar they need by sight; therefore what have they to guide them but smell?

It is well known that although bees can always find their own hive, they cannot do so if it is moved. They find it by their homing instinct. Pigeons have this developed to an extraordinary degree. Suppose a bee, with simple eyes at the top of its head, is a mile away from the apiary and wants to return. To see its hive, it would have to keep ducking its head repeatedly to cause these eyes to project forward instead of upward. In a similar way, if we want to see a bird flying overhead, we have to crane our necks backwards. And then bang into a tree or trip over the smoker! Painting hives in colors makes the apiary look pretty, but move a painted hive and the owners cannot relocate it even if that color is the only one in the apiary.

Bees are attracted definitely by light. Light must penetrate their understanding through their eyes. The compound eyes can discern light, of course. In the honey house the bees are drawn to the electric light and to the windows as well as to cracks in the roof and walls. It is quite understandable that the compound eyes can be very easily dazzled by light, having so many reflective surfaces. In winter with snow on the ground and the gray sky or sunshine above, the whole surroundings seem the same color to such a tiny creature. After all, human beings get snow blindness, and we can close our eyes. Scattering straw on the snow breaks up the whiteness which envelopes them, so the dazzling effect is broken. A little straw scattered far and wide is better than a lot scattered close.

Publications on research describe experiments with the object of finding out how much the bees can benefit mankind, colors are used, flowers are used, scents are used. But we selfishly consider that all the bees have to do is to serve **us**. Can we not appreciate the fact that in the same way as we have to protect ourselves from fire, floods, insects, ag-

gressive neighbors, and other dangers, the bees have to guard against predatory bird enemies, insect enemies, raindrops, ants, wasps, and other dangers also too numerous to mention? Speed of flight helps them to escape but only when they are first conscious of the presence of danger.

Although a great deal of research has been done and is still being done on the sense of sight, the findings give little help to the commercial man. Finding out that bees can be taught tricks does not help him to increase his profits or protect him from loss. Only the bees know when a honey flow is on and which the enemy is. Although placing blossoms in sugar syrup to flavor it inside a hive has been shown to encourage the bees to visit that source, it does not mean that the bee makes more trips with larger loads per day or that the yield of nectar is increased. From the seed grower's viewpoint, however, it would make a great difference; it would undoubtedly add to the commercial beekeeper's income if he were to study this with the idea of profiting by it.

But the ocelli must be of some use. In the same way that a fighter plane has a clear view above the pilot's head, so the ocelli may be a definite help to see danger from above. There are three, so perspective is possible. They point upwards when everything of interest is downwards.

The bees then have smell to guide them to their feed, the homing instinct to guide them back to the apiary, antennae to lead them about the hive, compound eyes to denote the presence of annoyances but not to gauge the distances: this leaves to the ocelli the important work of getting accurate information of danger from above.

Armstrong, B. C.

Dad and His Hobby

George Murray is, so far as I can ascertain, the first to successfully keep bees and produce honey in the mining town of Lead, S. D., home of Homestake Mine, altitude 5280 ft.

Bees not in clover but in mustard. This hardy plant which abounds in California is important as a fill in. Often, to the beekeepers' dismay, it competes vigorously with the orange for the visits of the bee.

Just before the orange flow is a good time to make increase. A 3-frame nuc is made from a strong colony with swarm cells. There is little loss to the strength of the parent colony because the removed frames of brood could do little toward helping out in gathering the orange honey crop. The loss of the few bees to the parent colony that are clinging to the frames of brood will be more than made up by the fact that you have a new colony that might even store some surplus on a later flow such as buckwheat, sage, or alfalfa.

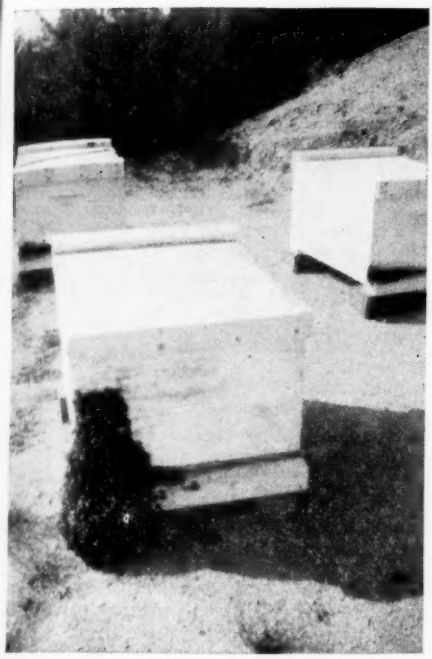
Making the Orange Blossoms Give

By Clarence Tontz

Probably more tricks have been dreamed up by beekeepers to grab off the largest possible crop of honey from the hasty spring visit of the orange than from any other nectar-bearing plant. Normally the orange flow lasts about ten days. If your bees aren't ready for it they won't even get out of the food chamber. If they are ready and the flow is heavy you'll average a can of honey in short order.

Some beekeepers here say that in order to fully cash in on the orange flow you have to maintain full strength colonies 12 months of the year. If a colony is allowed to diminish during the fall, they say it cannot possibly build up to peak strength in time for the orange flow which usually starts in this region around April 15. From my own experience I don't think there is much danger of having the colonies reach their peak too long before the flow. In many cases there are other plants to work on before the orange begins.

Part of my bees are in eucalyptus territory and this past season they plugged up the single story in which they were wintering around February 10 and each colony was immediately given a second super. Part of the frames in the added supers contained foundation which, on some of the colonies, was drawn out very well. Plenty of supers were kept on the colonies and they went into the orange flow prepared. Owing to plenty of room there was little in-



Single story colonies crowded in February on eucalyptus honey. They had an average of six frames of brood. It was feared that with such heavy abnormal brood rearing they might starve later in the spring. But the eucalyptus held out well and some eucalyptus was removed as surplus.

A two-story colony that built up on eucalyptus and stored a little surplus before the orange flow began. To get a first grade orange honey, the eucalyptus (if there's quite a bit in the second chamber) must be removed before the orange flow starts.

clination to swarm. However (don't ask me why), swarm cells did become more prevalent during the flow. It may have been due to the fact that the flow was not as heavy as it might have been. It was perhaps little better than the season of '45 which wasn't exactly a bumper crop.

Colony Morale Important

There is no denying the fact that colony morale is vitally important for securing that extra honey poundage that makes your neighbor beekeeper (if your bees' morale is high) want to go and kick the side of his hives.

Bill Strong, commercial beekeeper of San Gabriel, California, who runs a thousand or more colonies, remarked this spring that he had tried a stunt to induce his bees to go into the orange flow with a lot of pep and ginger. Instead of adding a second super to the single story colonies when they began to get a little crowded on honey from wild flowers in the spring, he simply let them stew. Of course this brought on swarm cells galore, but he simply made the rounds and kept them destroyed. Then just before the orange flow the second super was added. According to Bill they came up into the second super like a "jack-in-the-box".

Because I was behind with my bee work I went through this same experience with a few of my own colonies this past spring. Owing to a spring drouth a yard in singles hadn't built up to peak strength. I had not gotten around to feeding them. Just before the orange flow they built up a little on some of the wild flowers. When the orange flow was starting they were moved to the citrus belt. I didn't expect much from them, but thought they would keep alive at least.

When they were examined ten

One of the writer's yards, near an orange grove. The orange, one beekeeper said, never fails. It is the climatic conditions that determine how much nectar the bees are going to get from this heavenly-scented blossom. As Henry Perkins, senior inspector of Los Angeles County, says, the orange is seldom a total failure, but often a partial one.

days later I was surprised to find that they had pretty well filled the second super that had been added to each single colony. The queen had had very little time to foul up this super of honey with brood which made less work when they stripped down to singles again for moving to the sage and buckwheat. These small colonies, of course, didn't equal the stronger two story colonies in honey production. But they certainly made more honey with fewer bees. And there was less unnecessary supering and no swarm cells to destroy.

Be Ready for an Early Flow

In some seasons here when conditions are right, bees may be able to store a small surplus from wild flowers before the main flow from sage or orange begins. It is conditions like this that the beekeeper must watch or his bees will not only "go to the bushes" but he may lose some honey as well. In short, I believe in giving a colony plenty of room always. But too much room, while it lessens the work of swarm control, also involves handling many extra empty or almost empty supers.

A wise saying is that a lot of spring bee work is best done the previous fall. This applies doubly to beekeeping where you expect to secure the maximum yield from orange. Because the orange flow comes on so early many tons of honey go unharvested because many colonies have not built up for it.

This fall is the time to especially check your queens. A poor queen may fool you all winter, but next spring when heavy egg laying is required she will more than likely blow up. It is then too late to do anything about it except to double up the failing colony with another to catch the approaching orange flow.

After the orange flow colonies are stripped down to singles for moving to the alfalfa. The weather is usually pretty warm by this time and it is advisable to move the bees as soon as they are reduced to singles so that the second story can be added.

The Main Problem in Package-Colony Management

By Percy H. Wright

I know of no topic of wider interest to beekeepers, both in the South and the North, than the problems of avoiding supersedure of queens in package colonies and of promoting their rapid build-up of population. This year (1946), as chance would have it, I was able to carry out a small experiment which yielded what seems to me a "big" result.

My 30 packages, ordered for early May delivery, were delayed by a series of accidents, including the railroad strike, and they arrived on June 3. Despite the overcrowding of my home yard, I installed eight of these packages at home, intending to find time somehow to strengthen them by adding a frame or two of brood from the nearby overwintered colonies. But time was not so easy to find as I had expected, and I succeeded in so strengthening only five of these colonies, at various dates between a week and two weeks after installation.

Supersedure was very serious among the non-strengthened colonies. I did not keep a record of it, but estimate that a half to two thirds of the colonies have already provided themselves with a new queen. This has meant that a bad situation was made worse, for supersedure, even when the weather is mild and no laying workers result, always delays the progress of a hive.

At the date of writing, July 20, with the honey flow half over, the left-alone colonies fill between one and one-and-a-half chambers, the former doubtless those which experienced queen supersedure. Two colonies which lost their queens at installation time and were doubled up with queenright colonies, have, at date of writing, filled two chambers and were a little crowded when examined.

The five colonies at home have filled three chambers with stores, bees, and brood, and are the equal of most of my wintered-over colonies. The amount of extra brood they received was not large, perhaps the equivalent of two frames. To me it is little short of a marvel that so small an addition should have given so great an advantage.

Evidently the "weak link" of packages is the date, from three to four weeks after installation, when the old bees which arrived in the package have dwindled away to almost nothing, and no young bees have hatched to take their places. If the bees which were originally caged were a normal mixture of old and young, it is easy to suppose that their weight might have dwindled to half-a-pound out of a two pound package, which number is far, far too small to warm the eggs that the queen is capable of laying, and probably has laid. Does the hive at this time have one tenth the eggs and brood of which the queen was capable? If my picture of what happens in a package hive is a true one, a slow build-up of population is inevitable, and a colony which went unaided through the "trough" of weakness, or shall we say, the bees' Valley of Despond, might easily be a month later in reaching the proper harvest strength than one which had received only a little aid.

Possible Cause of Supersedure

Worst of all, the bees may become dissatisfied with the queen, and supersede her, on account of the slow but steady decline in hive population till the date that the young bees begin to emerge. I have read many suggestions that the bees will supersede their queen because eggs do not appear during the first few days after release, but I have not read any suggestion that the reduction in hive population may be the chief cause of dissatisfaction. Does it not seem reasonable to suppose that the bees are more conscious of the size of their cluster, automatically making a sort of head count every night, than they are of the silent eggs and the sealed-in brood?

The lesson, for the northern apiarist, seems clear: give your packages aid by robbing some combs of brood from wintered-over colonies if it is at all possible to do so. The lesson for the southern shipper is not

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Behavior of the Bee Cluster

By E. L. Sechrist

Part Two

The first part of this article closed with a statement that the consumption of one-half an ounce of honey by the bee colony could be transformed by the colony into enough energy to lift one pound to a height of 205 miles in one hour. This is what the colony is compelled to do when the temperature outside is 45° below zero.

Now to put it another way, when the outside temperature is 45° above zero the bees, in a broodless condition, in good wintering, produce enough energy to lift one pound in one hour to a height of 26 miles. That also sounds astounding but in reality it is only the energy used in keeping one 50-watt lamp burning continuously for one hour, and that sounds less terrible. But even at that, how do they do it?

According to the books, the heat value of honey is only 6030 British thermal units per pound and to produce the 1400 thermal units which we know the bees do produce in one hour at a temperature of 45° above zero, the bees would have to consume 5½ pounds of honey in 24 hours, or 165 pounds a month! We know from practical experience that they just do not eat that much honey. Therefore, we must conclude that a colony of bees gets a great deal more energy out of a pound of honey than the mere 6030 heat units indicated, this value being based almost entirely on the union of oxidation or slow burning of the carbon and hydrogen in the honey. How do they do it?

We find that the bee cluster actually does produce about 45,000 thermal or heat units per pound of honey instead of the mere 6030 which common chemistry would lead us to expect—that is, about 7½ times the figured amount of heat or of energy!

Were the bees splitting the atom long before we knew anything about it? It is quite possible. I do not yet have the figures but I have been assured by those who have worked on the atomic bomb that the work of bees in producing heat, in making honey, in secreting beeswax, and that strange and powerful food—royal jelly or brood food, is closely related to the methods used in producing atomic bombs.

It appears to be a fact that whether we consider the bee cluster to be warm blooded or otherwise, it is able to use the laws of the conservation of energy and the systematic control of the "random velocity of the molecule", which is the way the scientists put it. It sounds good even though we don't understand it.

What Does It Cost?

The bees do this seemingly impossible amount of work at high cost to the bee colony in bee life through destructive metabolism, or bodily activity. The short life of the honeybee is not due, primarily, to the fraying of the wings so the bee cannot fly, but to those activities mentioned above which, in some mysterious way, produce energy and heat from food, or which, by control of the "velocity of the molecule", produce new and strange products. At any rate, it now seems that there is a strange and wonderful activity going on in the hive which we have hitherto hardly suspected, much less understood.

We have long known that bees of a certain age produce the brood food and perform other indoor activities; and that, later, when they are no longer able to to such work efficiently, they take up the outdoor work of collecting pollen and nectar. But why is this the case? Probably the excessive activity exerted in changing nectar into honey, in producing beeswax and brood food through controlling atomic energy, has exhausted their possibilities in this line, compelling them to turn their energies to the less destructive activity of physical labor in flying, continuing with this minor duty until their wings are frayed and muscles worn out.

Hive Insulation

It has now been determined that, by protection of the hive from winds, by insulation of the hive, and by supplementing the normal heat of the cluster with artificial heat, the consumption of honey can be de-

creased and the excessive and destructive rate of "metabolic activity due to controlling atomic energy" can be lowered, thus greatly lengthening the life and increasing the useful activity of the bees.

We found that if we made the insulation on the hives heavy enough, the bees failed to fly on warm days in winter because the outside higher temperature did not penetrate the insulation. Finally, the bees would die. Now, however, we can arrange a signal that will give the bees "a ring" when it is warm enough outside for them to fly, or, more accurately, we can cause the inside temperature of the heavily insulated hive to be increased to the flying point as soon as it is sufficiently warm outside for the bees to fly. And then they will fly out because they can't help it.

Thus it appears that our failures with insulated hives were not because the hives were heavily insulated but because we did not think of going far enough to complete the program. We put them inside an insulating box or in a house apiary, but did not set the signals properly! Just because we had some wrecks and some disasters does not mean that we should abandon that good winter protection, particularly since we have found how to make it safe.

The Future

There is a thing I want to see done very soon and that is to have 20 or 25 colonies placed in a room so well insulated with bright metal and rock wool or something similar, that practically no heat will pass through the walls. Then I want air conditioning provided, and an artificial heating system in the room or house so that it will be kept automatically and continuously at the **optimum** temperature and condition for wintering, for brood rearing, or for summer work. This automatic control and signal system can be arranged to provide an indoor temperature of 45°, all winter, in the room (58° in the cluster) unless a day comes which is warm enough to permit the bees to take a cleansing flight, when a thermostat outdoors will take over the control and warm up the inside of the house to the outdoor temperature of 55 or 60°. Then the bees will fly until it again becomes cold outside when the inside temperature will again drop automatically to 45° and the bees will cluster loosely in their optimum winter condition.

Then, when spring comes, or when we want brood rearing to begin, the heat can be turned on in the control room, causing the cluster temperature to rise to the brood rearing point of 93°. Then the queen will begin to lay eggs. The automatic temperature control will keep this degree of temperature uniform day and night, through any cold weather that may come unseasonably and which would otherwise cause the bee cluster to contract and thus would interfere with the steady progress of brood rearing. Ventilating and cooling must also be provided so that if any long period of excessive summer heat does finally penetrate through the walls of our well insulated room, the inside conditions will automatically be brought to that optimum condition at which the atom-controlling activities can be carried out most easily by the bees and most profitably to the Bee Master.

I say that I want to see this. All the equipment is already available and in use, so that we can approximate these optimum conditions outdoors, even with the hives we now have in use—hives which are not built for the purpose. If we can do this with hives which are not well adapted to temperature control, I am sure we can do it by placing our bees inside a room built to the exact specifications which have been found necessary.

I'm not a prophet, but it requires no prophetic insight to see that, given the right or optimum conditions for bees to do their work, the bee's life would be lengthened and that the population of the hive would therefore increase rapidly. Queens reared under optimum conditions would be of superior quality and would lay more eggs, thus increasing the population still further. Brood rearing would begin in the spring at just the right time to afford an optimum population for nectar gathering when the honey flow begins.

When swarming was beginning I would withdraw heat from the room and make it so cool that the bees would make no further preparations

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Have You a Creation?

By Mrs. Benj. Nielsen

Honey Apple bran muffins.—Photo courtesy of Kellogg Co.

Do the men in your house like to exercise their cooking prowess? With three adventurous snack-minded males constantly experimenting in the Nielsen kitchen, anything may happen, and the surprises that frequently come out of their dabbling! I never hear the last of their successes—the least said about their failures, the better! Touchy male pride! One of these creations is Bob's Eggnog. I warn you it's like no eggnog in generally accepted cook books. It's the kind that must be eaten with a spoon. Still Bob insists it's an eggnog, and it is full of health giving vim-and-vigor producing ingredients. To make it he beats one egg white until very stiff; into this he beats about 1 tablespoon of honey, a bit of brown sugar, and a dash of vanilla. Next he beats the egg yolk until thick and lemon colored, then folds it into the honey-sweetened egg white. Now you can see why it is a spoon type concoction.

Do you have a creation, ladies, that you would like to share with other Gleanings readers? And here's a chance for the male honey cooks to show what they can do!

R. J. D., Middletown, Pa., requests a recipe for honey coated popcorn. With crisp fall nights, the new popcorn harvested, lots of folks will be preparing this toothsome goodie. Boil together over low heat ½ cup honey, ½ cup brown sugar, ½ cup butter, ¼ cup water, 1 teaspoon vinegar, and ⅛ teaspoon salt. When a few drops become brittle when tested in cold water, remove from heat and add 2 teaspoons vanilla. Pour over crisp, freshly popped corn, stirring well to coat evenly.

Honey Apple Bran Muffins

Two tablespoons shortening, 3 tablespoons honey, 1 egg, ¾ cup grated apple, ¾ cup milk, 1 cup bran, 1 cup flour, ½ teaspoon salt, and two teaspoons baking powder.

Cream shortening and honey; add egg, and beat well. Stir in grated apple, milk, and bran. Add flour sifted with salt and baking powder; stir until dry ingredients are just moistened. Over stirring will produce peaked muffins, generously riddled with tunnels. Fill greased muffin pans two thirds full and bake in hot oven, 400 degrees F., 25 to 30 minutes. A light dusting with cinnamon before baking provides a delightful variation.

Honey Peanut Cookies

One and ¼ cups sifted flour, 1 teaspoon baking powder, ¼ teaspoon soda, ¼ teaspoon cinnamon, ¼ teaspoon nutmeg, ¼ teaspoon salt, ⅓ cup shortening, ¼ cup sugar, ¼ cup honey, 2 eggs, ⅓ cup milk, ½ cup peanut halves, and 1 cup finely chopped peanuts.

Mix and sift dry ingredients. Cream shortening, adding sugar gradually; beat in honey, then add beaten eggs; continue beating until light and fluffy. Add dry ingredients alternately with milk. Fold in halved peanuts. Roll tablespoons of mixture into balls, place on greased baking sheet and flatten by tapping with glass, over bottom of which is stretched a piece of paper towel or waxed paper. Sprinkle with chopped peanuts. Bake 12 minutes in a moderately hot oven, 375 degrees F.

Aurora, Nebr.

Migratory Beekeeping in Australia

By D. McLennan

Australia is an exporter of honey, and considerable quantities are shipped every year, principally to Great Britain. In fact, if it were not for our export trade, we would have overproduction, with low prices, and disruption in the industry.

Eucalyptus Trees for Honey

More than half the honey produced is extracted by what are termed as migratory apiarists. These beekeepers continually move from place to place, wherever a honey flow may be on, packing up and leaving when the honey cuts out.

Here in Australia the bulk of the honey, probably somewhere about 80 percent comes from the trees, mostly of the eucalyptus species. Not much comes from the ground flora.

Eucalyptus trees seldom flower every year; some every alternate year; some every three years, varying with the kind of eucalypt, and varying too, with the seasons. The length of time they carry the bud before it bursts into flower is usually nine months. Different species have definite different periods—such as for example, red gum **(euc. rostrata)** 10 months, black butt **(euc. pilularis)** 17 months. Sometimes, through a dry season the trees may drop their buds before they flower, and thus because of the length of time the trees take to form buds and the buds to reach maturity, it is a long time between honey flows from that particular tree.

Because of the nature of our trees, it is very seldom a district is good two years in succession, and it is necessary to shift.

On the Move

Migratory apiarists often pack up and leave for honey yielding flora 100, 200, or 300 miles away. Often they camp out with their bees in tents; sometimes they rent a house in the nearest town. (This latter, however, is hard to do now, because of the scarcity of houses caused by manpower shortages during the war.)

The climate in Australia is warmer and dryer than in most of your country, and camping out is quite comfortable, insofar as the weather is concerned, at any rate.

The most important trees from an apiarist's point of view are the yellow box, white box, red box, red gum, grey gum, spotted gum, grey ironbark, mogga, red stringbark, and yellow stringbark. There are many other species of trees which are good honey yielders, most of them eucalypt, but there are other trees outside this family which are good honey yielders. Two examples are the apple trees of the Angophora botanical order (which, incidentally, bears no resemblance to the ordinary domestic apple tree), and the tea trees, both of the Melalema and Leptospermum genera.

Of the ground flora, the best I would say are Lucerne (alfalfa), Paterson's Curse **(Echium plantagineum Linn)**, St. Barnaby's Thistle **(Centaurea solstetialis)**, and Cape Weed **(Cryptostemma calendulaceum)**.

It is difficult to give you an estimate of our average honey yield per hive, but I thought this might be of interest. It has always struck me in reading bee journals, and on learning of yields in other countries, that we in Australia are very fortunate in our big yields.

For myself I would count it a very poor year that I did not extract at least two tins per hive. That is of course the 60 pound tin which is the standard over here. We, and most other migratory men, would average from three to seven tins year in and year out.

600 Pounds to the Hive

I have known of cases when a ten tin average per hive has been taken in a season. The permanent or non-migrating apiarist's average yield is very much lower. He will get a flush season perhaps every two or three years.

In California it is reported that the Australian eucalyptus trees grow well.

The yellow box **(e. melliodora)** is a wonderful honey tree, at the same time quite ornamental, and should grow well in the warmer parts of the States.

Another thing which is very dif-

ferent over here is that no "honey in the comb" or "chunk honey" is produced; all our honey is extracted honey. Before the war there was very little, but now the only sections produced are by hobbyists with but a few hives, who produce it for their own table use.

Honey for Tobacco

Peculiar, too, as it may seem to many readers, is the fact that one of the biggest buyers of honey are the large tobacco companies, who use honey in the manufacture of tobacco. Presumably it gives sweetness, aroma, and moisture holding properties to the tobacco.

Few beekeepers have houses in which to extract their honey. Some do it in the open right alongside the hives; others erect a tent; others a rough bee proof tent; and others have caravans fitted up to do the work. The migratory man usually uses a four or eight frame extractor, although some still use the two frame size. Many of the bigger men use a small two horsepower gasoline engine to drive the extractor, and often a honey pump which pumps the honey into a settling tank. Some beekeepers still use the water heated knives, but most commercial men use steam knives with a steam coil in the extractor to heat the honey.

The radial extractor has been tried, but has not been satisfactory for Australian conditions. However, there are quite a few of the semi-radial type in use, but the most popular is the type where the comb is held at a right angle to the radius of the extractor.

The Cappings Reducer

A distinctive difference in extracting procedure lies in the treatment of cappings. We have no extractors in which the cappings can be put to whirl dry. Nor do we use a press. Pretty well, without exception, the combs are uncapped over a steam or hot water jacketed reducer. As the cappings fall on the hot plates they are reduced to liquid and the cappings flow out of the outlet gate at the bottom into a wax separator. This takes various forms, often it is just a two gallon bucket with a honey gate at the bottom. When the bucket is full it is held over the honey extractor, the gate opened, and the hot honey allowed to flow out and mix with the other honey in the extractor. The gate is shut when the slumgum is about to appear, and the bucket replaced under the wax reducer gate to be filled again as the uncapping proceeds.

My own extracting unit is of the caravan type. It consists of a 7'6" x 12' masonite covered two wheel caravan with large sliding doors and shutters on the sides, which when open leave ample provision for air circulation to keep the interior cool. The unit is hooked on behind my Chevrolet truck when we want to move.

In one corner of the caravan is the steam boiler which supplies steam to the uncapping knife, to the cappings reducer, and to the steam

Mr. McLennan placed his bees among the eucalyptus trees.

coil inside the extractor. Two men operate the plant, one inside and one outside, and in a day it is possible to take off around about 45 tins (60 pound tins).

The cappings fall off the knife into the reducer and then into the wax separator. The separator I use is of the continuous type; the honey is being separated all the time, flowing around through a pipe line direct into the extractor where it mixes with the honey just extracted. A two horsepower engine drives the extractor and a honey pump which forces the honey through a pipe line and flexible hose connection into either of two honey tanks on the truck.

The time required to settle the honey varies, but about 18 hours is usually enough and the honey is tinned (in 60 lb. square tins) while still warm direct from the truck.

Usually I have a truck load of bees, about 80 to 100 hives, on each stand, and on completion of a stand the truck and caravan move on to the next stand. By the time we have gone the rounds on a good honey flow, it is time to start all over again.

Does Heat Discolor Honey?

I gather that the applying of heat to the cappings is not the usual procedure in your country, owing to the danger of honey discoloration. It is not denied that heat, such as is required in a reducer, will discolor water white or very light colored honeys. But the discoloring is so slight and then only a small percentage of the honey goes through the reducer, that in the final sample it is practically impossible to detect any discoloration.

A point worthy of notice is that because of differences in flora, our honey is naturally slightly darker in color than yours. Of course, we have some water white honey (very little), and some extra dark; but we are speaking of the average honey. The nature of our honeys is such that heating of the cappings honey in no way impairs the flavor or the quality as far as can be noticed, and certainly does not affect the commercial grading.

Further, our honeys are naturally denser in specific gravity, and this allows of extracting whilst there is but little of it capped. This means that there is less cappings going through the reducer, and of course less honey subjected to the heat.

In the coastal areas, because of the greater humidity the beekeeper has to be careful to let more of his honey become capped than he would in the dryer inland districts.

I remember on one inland flow on river gum (**eu. rostrata**), very few of the combs had any cappings on, and working all day there would hardly be more that 8 gallons of cappings all told. Yet it was beautiful honey and there was no fermentation. The temperature in the shade was 100 or over every day at the time.

On this same flow—river gum—my hives gathered just over 60 lbs. per hive every week for over three weeks. That is 220 lbs. per hive in three and a half weeks, the duration of the flow.

We use in bee material the same standard sizes as you have in the U. S. A. Some bee farmers use 8 frame hives, some 10 frame, and the most popular depth is the full depth size.

Personally, I do not use wired foundation; it has several objections for my use, which we have unfortunately not sufficient space to go into here.

The use of electricity in your apiaries has always interested me. In Australia all the power used is mostly a 2 horsepower gasoline engine. As there are few permanent places of honey extraction, and we are constantly shifting from place to place, often where there is no electricity, this source of power is therefore out of the question for us, unfortunately.

Popularity of American Trucks

How do we get about? Well, I have a 1941 3½-4 ton Chevrolet truck. Chevrolets, Fords, and Internationals, 3 to 5 ton capacity, are the usual thing.

The migratory man usually works between 300 and 1000 hives and employs one, but sometimes three or four hands, according to the number of hives. Petrol, or over there I think you call it gasoline, is our dearest item. It costs 2/11 (60 cents now) but during the war it went as high as 3/2. Many of us were forced by the Government to install producer gas units on our trucks, and use charcoal as a substitute fuel.

Camden, N. S. W. Australia.

The Spraying Menace

By C. H. Pease

The introduction of the new DDT poison has given the public a new toy to play with, and it has taken a comparatively short time to demonstrate that the promiscuous spreading of this poison, added to the other poisonous sprays that are already recklessly used in both vegetable and flower gardens and on certain farm crops, has reached a point where the effect is becoming alarmingly noticeable.

Even our State Board of Fisheries and Game has reported "losses of fish caused by careless handling of poison chemicals used for spraying".

In the western states where the spreading of poisons has been, for several years, done on a large scale by dusting from airplanes and spraying, the production of clover seed has dwindled from twelve bushels per acre, years ago, to less than one bushel now; and in Utah six times as much alfalfa seed was produced from approximately the same acreage, years ago, as is harvested now. The reason for this condition is the lack of bees to pollinate the plants because spraying caused the beekeepers to move to safer locations, and when the bees went, the crops dwindled.

Although most people believe that the only benefit derived from bees is the honey they make, it has been proven conclusively that the pollination of garden, fruit, and farm plants is of far more value than the honey.

The Farm Journal of last January published a very enlightening article entitled "We've Got To Have More Bees" and the writer evidently knew what he was talking about when he insisted that plenty of bees will increase your crop of legumes, vegetables, and fruits.

Useless Work

To come back home, the wholesale spraying of elm trees along the highways that was done several weeks ago was supposed to curb the infestation of elm tree beetles, but does it? A few days ago we observed on the trunk of a large elm tree, a few feet from the highway, millions of little worms (evidently the worm stage of the elm tree beetle), enough from this one tree to infest all of the trees in town, and then some. They got a copious dose of DDT and the trunk where there was nothing to attract bees, as far up as the spray would reach, but as a control measure is was not "a drop in the bucket" when compared with the whole upper tree that could not be reached. It was about as hopeless a task as trying to exterminate all mosquitoes by swatting the few that bite us.

This highway spraying with their high-power sprayer costs money, and it's a question if it doesn't do more harm than good. The spray hits only a small portion of large elms (and it didn't touch one quarter of a large elm in front of our place) but the spray fell to the ground poisoning the grass, the clover, and dandelions from which the bees gather the poisoned nectar and die. Dead bees gather no honey nor do they make our gardens and trees bear fruit.

Beekeepers Complain

Beekeepers all over the state are complaining of unaccountable losses of their bees and queens that they had not had in previous years. This means less honey to help bridge over the shortage of sugar and also less food for us from our gardens and fruit trees, and a reduced yield in farm crops. How can these losses be accounted for other than the wholesale broadcasting of poisons?

Another indication that the poison spraying is doing what we don't want is that it is doubtless killing insect eating birds. As proof of this the kingbird is called the "bee martin" because it feeds on honeybees and numerous other flying insects. The bees get the poisoned nectar and before they get home a kingbird catches them; how many of these small doses of poison are necessary to kill a bird, no one knows, but is it not significant evidence when in previous years kingbirds were plentiful, especially around bee yards, not only I but other beekeepers have not seen one kingbird this summer?

Of course, the stately elm is a beautiful tree to look at, but from a commercial standpoint who wants it? Even woodsmen, who heat their houses with wood, and have had previous experience with elms, will

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The Use of Sulfa Drugs for Controlling AFB

By Leonard Haseman

Chairman, Department of Entomology,
University of Missouri, Columbia, Missouri.

[Address before St. Louis-St. Louis County Beekeepers' Association, Purina Research Farm, Gray Summit, Mo., July 14, 1946.]

The writer began the study of bees and their ailments some 30 years ago when he, in cooperation with a local beekeeper, began giving infected combs to healthy colonies to study the progress of the disease step by step. This was contrary to the recommendations of bee disease specialists; but, while we in Missouri have the reputation of being conservative, we do sometimes have the courage to question old established theories. As a result of these early observations on the expected "wildfire" spread of AFB through the experimental colonies, we learned that some colonies could remove disease scales from the cells and could live at peace with the infection and rear normal, healthy brood in diseased combs. Now we have, for helping combat AFB disease, strains of bees being carefully bred for resistance by a number of our best queen breeders.

As the work of treating infected combs with formaldehyde, and later with chlorine, got under way, we tested out these and other solutions for disinfecting the combs and found, as others did, that when done perfectly these comb treatments were a definite help in combatting AFB. However, as the years following the First World War sped by, it was evident to us that we still did not have a "sure-fire" control for the universally dreaded menace to beekeeping, American foulbrood. Too many colonies were still going down with the disease and too many infected colonies had to be gassed and burned each year.

As we entered the Second World War our State was without a bee inspection law and our beekeepers were given little help with their problems of honey and wax production and disease control. With most of our staff called into the army, we were not even able to help much with demonstration work and bee club meetings. One day while in the office to discuss his bee disease problems, Mr. Childers, a former member of our Experiment Station staff, raised the question of sulfa drug medication as a possible cure and offered his apiary for tests. After consulting with the medical men on dosages of different sulfa drugs which might be tested, we decided to first try them out in the Entomology Department's colonies. Sulfanilamide, sulfathiazole, and sulfadiazine were all used in the first experiments in 1942. Later in the summer similar tests were made in Mr. Childers' apiary, and we found sulfathiazole to be most promising. In 1943 further tests were continued with sulfathiazole, and we found the dosage of ½ gram to the gallon of sugar syrup to be safe and seemingly effective.

It was not until the spring of 1944, however, that we went at the problem in "dead earnest", using the above dosage both in sugar syrup and combined in pollen substitute. All the Department's colonies, together with some 35 infected colonies and 50 new three-pound packages in the Childers yard were fed the drug systematically. The infected colonies all cleared up and not one of the new packages showed any signs of infection, even though they were hived in unsterilized hives, on used drawn combs in part, and fed honey from colonies that were gassed the previous year because of AFB. At the end of the season the results of the three years' work were appraised, and after discussing them with some of our beekeepers we decided to make our findings known to Missouri beekeepers by publishing Bulletin 482.

The results we had secured were too good to be true. By the summer of 1943 beekeepers throughout the length and breadth of the United States and Canada and the British Isles were successfully clearing AFB from their infected colonies. Literally thousands of beekeepers have now used the treatment to their complete satisfaction. In the British Isles sulfapyridine is being used in place of sulfathiazole, and many of

(Continued on page 583)

Live and Learn

By Propolis Pete

Last month I gave you a summary of my education on the subject of wintering bees. So much space was taken up with my gassing about what happened to me that I didn't get much chance to throw in my observations. So, since October is still one of the months when we prepare for the winter season, it seems to be in order to continue.

On the question of feed—the tendency seems to be more and more to leave a lot of honey. This is wise, but if carried to extremes can be much too wasteful. I have a fair collection of old bee books, and in them you will find that the real old bee masters thought 15 pounds of honey was plenty for wintering. Only as recently as ten years ago, 30 pounds was considered a good reserve, but the most modern theory seems to be that at least 50 pounds is not too much. Some experts today feel that a hundred pounds is not too much, with the colony being wintered in three stories. Obviously there is an upper limit that borders on the ridiculous just as there is a lower limit that borders on starvation.

My good friend C. H. Pease of Canaan, Conn., has a system all his own that has brought wonderful results. Yet he violates nearly all of the currently accepted theories. He extracts just about all the honey possible without throwing in the brood, feeds back sugar syrup, then winters indoors and feeds again in the spring. As he says, sugar is less expensive than honey as winter feed, when you can get it.

Which is the correct way to winter bees? I don't know. I do know that Mr. Pease gets wonderful results, and proponents of the three story colony do likewise. Personally, I winter outdoors because I have to, and try to leave enough honey to last until the following June. If the bees do not use it all, it does not spoil, but is carried over by them. What they don't use this year they will use next year. And honey already in the brood nest does not have to be replaced. Consequently that much more will go into the supers next year.

Wintering indoors is tricky. The ventilation of the cellar, light, or rather absence of light, temperature, and timing are all vital to successful cellar wintering. Until you have more experience, I recommend that you leave the bees right where they are and see to it that they have plenty of stores and protection. As I said last month, the protection that they need is directly related to their position. In many locations nothing more is needed than a windbreak. In others, a windbreak plus a little wrapping is all that you need, provided that the colonies are strong in young bees, strong in stores, and have queens that will be able to take up the burden when it is expected of them.

Formerly it was recommended that the first super of light spring honey be removed from the hive and saved for winter stores. Or, the first super of white spring honey to be filled would be placed on top of the hive and kept there until the hive was reduced to winter proportions. That's management that is management, but Hercules himself would grunt at the thought of lifting that super every time the hive was worked. And when extracting time came, and the crop was light, nine times out of ten that super went into the cans too. Many a hive starved as a result of that system.

For me, I have found that fall honey is just as good for wintering as spring honey. But there again, location comes into the picture. My winters are not too severe, and it is rare that a month goes by without a chance for flight. It is true that after bees have been confined for any length of time, a winter flight results in a lot of spotting, but the same thing happened even though I did save the nice mild white honey of early spring.

Be reasonable. You can starve out your bees by leaving too little, but if you leave too much it is not wasted. Nevertheless try to strike a sensible happy medium, but in your experimenting remember that **it is better to leave too much than not enough.** Leaving too much might cut into this year's crop, and it might reduce your average per colony below the bragging point the first time you do it, but it pays off next year.

Annotations

By Dr. A. Z. Abushady, Professor of Bacteriology, Farouk University
General Secretary, "The Bee Kingdom League", Egypt.

Migratory Beekeeping — This American (and Scottish) practice which is becoming questionable(p. 500) September, 1946, Gleanings, was started by beekeepers in Ancient Egypt thousands of years ago. They used to have their mud-tube hives piled up in the Nile boats with which they voyaged from place to place, following the pastures. Practically the whole year round they had in this manner excellent opportunities for endless gathering of nectar and of repeated harvests. Egyptian weather is of course dependable (which is a very favorable factor). This cannot be said of American and Scottish weather where migratory beekeeping is practiced. The alternative is multiple out apiaries.

Sahara Bees—I have been asked about the merits of the so-called yellow "Sahara Bees" in Egypt. I do not know of the existence of such bees. Italians are the only yellow bees that have been implanted in one of the Egyptian oases at one time, and it is possible that the "Sahara Bees" referred to were Italians introduced in the last century or earlier by some French soldiers (beekeepers) in the oases of the French Sahara. Possibly they were originally a select gentle strain. But are such bees now available?

Do Bees Pollinate Tomatoes?—I have never seen bees visit tomato blossoms (p. 503). This subject has for long engaged my attention in view of the extensive cultivation of tomatoes in vegetable growing areas of rural Egypt. Three of my apiaries were in such districts and I used to be happy when such vegetables and greens as turnips, marrows, and cucumbers, were grown instead, as the tomato fields were considered a dead loss to the bees. I am sure my esteemed friends Mr. A. F. Harwood and Mr. L. S. Harker in England are of the same opinion.

Up-to-date Equipment — I fully endorse Mr. Kelly's remarks (p. 501). I made a similar gesture to the "Kent B. K. A." (a progressive association in England) in 1916, apart from my efforts in the "Apis Club" and the "Bee Kingdom League". But beekeeping in both England and Egypt lacks the funds which are sufficiently available here. As far back as 1920, The A. I. Root Company believing in my impartiality and progressive inclination, trusted me in England with testing wood base foundation, but unfortunately it was not successful. Again in 1932, the American engineer-beekeeper Mr. George MacDonald presented me with paper combs for practical testing in Egypt. But much as I admired his invention, it proved a failure from the practical point of view. On the other hand, his celluloid comb proved not only a success but a fool-proof equipment, and seemed adaptable to all sorts of weathers and conditions. It is not as durable as the aluminum comb, which in my judjment is ideal for honey production. No modern apiary in Egypt is without it, and beekeepers in Egypt are longing for the supply of artificial combs (both celluloid and aluminum) from America, not necessarily of the MacDonald pattern, now that the war is over. As pioneers in modern apiculture, I think the bee supply manufacturers should experiment with plastic combs (all in one piece). We have to get a material approximate to beeswax in heat preservation as well as economical in cost (with due regard to durability), if we have to use it for breeding purposes. Possibly it may prove an ideal comb.

Beekeeping Fraternity — The Bronx County B. K. A. boast that their membership is growing (p. 504) and invite beekeepers to attend their meetings and find out the secret. I have had this pleasure and can safely diagnose their success as due not only to their progressive spirit, but also to a genuine fellowship amongst their members which makes their meetings a real joy. They are also imbued with a cooperative spirit in helping each other in their various professions. Altogether, they are above the boredom of official routines. Such charm and cordiality I have found only in the gatherings of true beekeepers, who by loving their bees love Mother Nature and enjoy peace and happiness with their fellows in her care.

Jamaica 5, N. Y.

From the Field of Experience

Laying Workers and Drone Layers

By E. S. Miller

The brood of laying workers and that of a drone-laying queen have much the same appearance. There is, however, some difference. A drone-laying queen usually deposits only one egg in each cell, whereas laying workers often deposit several and sometimes many. Eggs in either case are laid mostly in worker cells although they may be found in drone cells and in uncapped queen cells. Capped drone brood in worker cells is convex and extends out farther than does worker brood. Usually it is somewhat scattered. When laying workers are present, worker brood is, of course, absent.

Sometimes a laying worker colony may be requeened by inserting frames of worker brood taken from another hive and a queen introduced later after a considerable number of young bees have emerged. A better plan is to unite it with a strong queenright colony. To do this, remove the cover of the queenright hive and place over the frames a sheet of newspaper. Then take off the bottom board of the laying worker hive and set this hive on the top of the other. The bees will soon eat away the paper and unite without fighting. The queenright colony should be of sufficient strength to be able to protect its queen against the newcomers. If the queenless colony is strong it may be divided and added to two or more colonies in the same manner. A colony with a drone-laying queen may be treated the same way after killing the drone-layer. If not disposed of she may continue her work of laying drone eggs.

The treatment for laying workers advocated by old-time beekeepers and by some later writers, copying their predecessors, was to shake the bees out a few rods away from the hive and then to requeen. The theory was that only the good bees would come back home and the culprits would be eliminated. It seems to me that this belief is entirely unfounded. Even if true, all of the bees of a laying worker colony are old and old bees do not take kindly to a strange queen. She would almost surely be killed.

My experience shows that there is little advantage in trying to requeen any colony after all of the brood has emerged. In some cases a young queen may be present and would kill any new queen introduced. Even where there is no virgin in the hive the bees are old and not apt to accept a strange queen. Uniting the queenless colony with a strong queenright colony, preferably before workers begin to lay is, in my opinion, the most practical way of disposing of queenless bees after the brood is out.

Valparaiso, Ind.

[Mr. Miller is right. It doesn't pay to fool with a laying-worker colony. Better unite it with a queenright colony. A drone laying queen can and should be removed and a laying queen introduced, that is, if the colony is sufficiently strong in bees to warrant the procedure. If the season is advanced and the colony weak, unite it with another colony.—Ed.]

Chasing Ants from Hives

By F. W. Ramsey

I have noticed that the question "How can I get rid of ants?" is asked quite frequently in your magazine. Several years ago I was troubled by ants getting in my hives, especially between the inner and outer covers. I finally decided to try some Sodium fluoride. This proved to be a success for me. By sprinkling a small amount on the inner cover the ants will start leaving at once with no thought of returning. One application has kept the hives free of the insects for a year. A generous application on an ant hill will clear it of the inhabitants in a couple of hours.

Greenville, Penna.

Bees in His Bedroom

By Charlotte Brown

The problem of keeping bees through the rigors of a New England winter holds no terrors for William P. Austin, 15-year-old beekeeper of Dorchester, Massachusetts, as he keeps his hive of 75,000 bees in his bedroom.

The hive sits in front of a window so that the bees may go in and out when the weather is suitable. During the year Billy obtained about 40 pounds of honey from the hive and he uses this as food for the bees when they are unable to go out in the winter months. Last spring when it was cold and rainy for weeks at a time he fed them with a syrup made of sugar and water. He started the hive about a year ago, first buying two pounds of golden Italian bees and a queen, and adding a swarm later.

At times, when Billy is working on the hive, hundreds of bees come out into the bedroom, settling on the walls, ceiling, and draperies and even on the young man himself. He is often called to the telephone while scores of bees are clinging to his sweater. "Oh, yes, I get stung sometimes," he says smilingly, "but I just pull out the stinger and that's all there is to it".

Billy has been a student of natural history since his early youth and has made an intensive study of bees. Much of his knowledge has come from reading bee journals. He is a deeply interested member of a beekeepers' society.

His parents allow him to conduct his experiments in natural history at will as long as he confines them to his bedroom. And so, besides the bees, he also has glass tanks in his room containing toads, frogs, pickerel, newts, and salamanders.

Billy's latest acquisition as a bedroom companion, however, tops the list. It is a deodorized skunk named Jimmy. The skunk is a great pet and is a beautiful little animal about a year old having glossy black fur with a white stripe running down its back. A short time ago a photographer from Universal Films went to the Austin home to take motion pictures. He desired to photograph Jimmy sitting on top of the beehive but the humming of the bees made the skunk nervous, with good

Billy and his pets

reason, and so instead of remaining on the hive he clung lovingly to Billy's shoulder.

Billy does not plan to make natural history his life work. His great ambition is to be an ecclesiastical architect. Much of his spare time is spent in making intricate drawings of carvings of altars, rose windows, and cathedrals.

Dorchester, Mass.

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Pollen From Ragweed

By Wm. E. Batchelder

My wife and I have made a simple observation that might be of interest to other beekeepers. For the past week (written September 3, 1946) we have seen hundreds of bees collecting pollen from common ragweed. This takes place between 8:00 and 10:00 A.M. while the dew is still on the grass.

We can readily hear the bees humming a full 30 feet from the patch of ragweed. The pollen is pale yellow and the bees have stored a fair quantity of it to date.

Moodus, Conn.

Indians Skilled in Bee Lore

By C. H. Huey

The accompanying picture is an authentic one of Billy Bowlegs, famed Indian chief of the Seminole tribe that once roamed the Okefenokee region. The Indians were adept at "lining bee trees", and were skilled in bee lore of a primitive kind. Old records show that they made use of beeswax, and in the immense Okefenokee swamp where they made their homes for many years, pieces of wax have been discovered still intact.

Also, before they left on the westward trek and part of their number retreated to the Florida Everglades they would meet with the pioneer white settlers at Traders' Hill, a part of the swamp; here they exchanged, among other things, wax for the things they wanted. Their canoes, by the dozens, would be tied up at the "Landing Place" at Traders' Hill. A number of the old pilings may be seen there at this present day, mute reminders of by-gone days, a graphic period in the settlement and development of America.

Not far away is the blockhouse, and near-by a cotton gin with all cogs and wheels made of wood. All around Traders' Hill is good bee territory with a few small apiaries scattered about.

For some years in that hectic period of the early settlements Billy Bowlegs' star, as an Indian chieftain, was in the ascendency, and much trade was carried on up until the raiding and depredations of the Indians brought on warfare.

Even though Fort Alert—Traders' Hill—was established in 1562 and

Billy Bowlegs, a chief of the Seminoles

records are rather obscure, it is interesting to note that beeswax was important enough to be mentioned as a medium of exchange.

Judging from the picture, the Indian chief must have eaten plenty of honey. He was said to have been a tireless walker and a remarkably strong man.

Waycross, Ga.

oOo

Mistakes to be Avoided

By John E. N. Coleman

My first year in beekeeping insofar as profits were concerned, was a total loss. As I am now in my second year, it is imperative that I make some profit to sustain my business financially. That, however, is another story, but I would like to relate a few of the experiences I had and to caution against some mistakes which I made.

One of the gravest errors that the beginner is likely to make is not allowing enough room for the queen to lay in. All colonies during the first year should have a double brood chamber so that a young queen may have ample comb space for laying. I speak from experience on this subject, as my best colony swarmed late in the season simply because of lack of space for the queen to lay in.

Another common mistake is in not having such equipment as hives and supers ready. These should be available for the bees several months ahead of time. One of my colonies swarmed before my equipment was

assembled which resulted in my performing the arduous task of assembling and making up a hive in the same day.

Since the colony is as good as its queen, all colonies which do not have good queens should be given queen cells, or young laying queens may be introduced. One of my colonies started well but because of the inferior queen started to die off. After a new queen was introduced, conditions improved.

Colonies should be kept clear of weeds so that heavily laden bees have a clear path to the entrance. The grass and weeds can be kept down very easily by applications of salt.

Should the colonies not have natural shade, it should be given to them by making a slated sunbreak, improvised from cheap timber. This is necessary in order to minimize the possibility of the bees clustering outside the hive's entrance.

One will find that in beekeeping the experienced person is very helpful to the beginner brobably more so than in other professions. By just spending an hour or so discussing and explaining equipment, many difficulties can be ironed out and made clear to the novice which will result in a better beginning and a more profitable year.

The initial cost of starting an apiary may be expensive to average youth. In many cases the only way to meet the expense is to earn or save the money. I am fifteen years old and it did not take me long to earn the hundred dollars needed to start beekeeping.

Wilmington, Del.

Use Your Head and Save Your Back

By Harris C. Harvey

I have profited so many times by ideas of other beekeepers that I am sending in a couple of my own. We backyard amateurs probably comprehend these minor items better than we do the learned discussions of beekeeping engineers, the value of which we do not appreciate until we re-read them some winter's night when it's too late to apply them until next season.

This spring I was faced with moving a beeyard in a hurry with no help. To lift double hives onto a wheelbarrow and push them over soft ground was no cinch. But people with weak backs (or lazy ones) usually have active minds.

I thought of a spray rig which I have of a type fairly common among small property owners. By detaching the truck and turning it upside down, I could slide the hive onto it and **pull** it out onto hard ground. I believe the manufacturers sell this truck separately for about $4.00. The picture shows how it is used.

For several years the problem of grass and weeds around my hives bothered me. I tried various remedies but none was satisfactory until I hit upon pieces of 90 lb. roll roofing placed under the hives. Cut them large enough to project at least four inches side and back and six inches in front. It may curl a little when first put down but soon actually hugs the ground and I can run the lawn mower over it. It also prevents the hive stand from rotting and so helps to discourage ants. One roll is enough for 16 hives.

A back saver is usually a time saver

Williamsville, N. Y.

Why Do Some Colonies Supersede While Others Fail and Become Queenless?

By E. S. Miller

If I were to hazard a guess I would say that it is chiefly due to the stock and strain of bees. Ordinary blacks or hybrids usually can be depended upon to start plenty of queen cells, enabling them to swarm or to supersede. Italians, bred for non-swarming, may fail to start cells and consequently become queenless.

It is no secret that the swarming instinct can be greatly modified or possibly eliminated by selective breeding. For more than a decade I have been rearing my own queens by grafting larvae from superior colonies that do not swarm and have had no swarms for several years. Perhaps I have overdone it for they just don't seem inclined to start queen cells and many colonies become queenless. With rousing big colonies that we now have it seems necessary to requeen often and I surely cannot depend on supersedure for renewal of queens. I have difficulty in securing queen jelly for grafting and in getting grafted cells accepted. Even colonies made queenless often fail to start any queen cells and at most they develop only a very few. It begins to look as though I would have to introduce some "colored blood" if I continue to rear queens. Perhaps there are others having the same difficulty.

Valparaiso, Indiana.

[It does seem possible, as Mr. Miller says, to develop a strain of bees that are practically non-swarming. Such bees may not build supersedure cells as readily as some other strains. The late Mel Pritchard, who reared queens for 40 years, claimed that the strain of Italian bees he developed rarely, if ever, swarmed. He practiced requeening regularly each year. Of course, he had plenty of queens on hand for requeening. I have an apiary of 50 colonies which were not requeened regularly. I have relied largely on the supersedure impulse for requeening. However, I do replace worthless queens when found. It is seldom I find a colony that is hopelessly queenless. Perhaps others have had similar experiences along this line.—M.J. Deyell.]

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Dr. and Mrs. Phillips and Their Three Sons

This was taken just after Dr. Phillips retired from active duty as Professor of Apiculture, Cornell University, June 30 of this year. As mentioned is a recent issue of Gleanings, Dr.Phillips, even though retired, will continue to be active in civic affairs, especially Rotary work. Mrs. Phillips is editor for the College of Home Economics at Cornell University and author of numerous books for children. The three sons are achieving success in various fields. Frank Jr. is promotion director for the Standard Oil Co. of New Jersey; Dr. Wm. T. is rubber consultant and division chief in the Department of State, Washington; Howard is personnel director and production manager of the Washington Institute of Technology, Maryland.

SECOND GLANCES

By C. M. Isaacson

Let the bees alone! Outside of supplying (or rather "leaving") an abundance of honey and pollen with a good queen and young bees, that advice from R. E. Newell's article (page 465) is well worth keeping in mind. Late fall manipulation may do harm after a colony has settled itself for winter, so to speak. And even the problem of failing queens, which he mentions, is not so much of a problem in double story hives. Colonies so housed very often supersede in late summer or early fall (see also Editor Deyell's Talks to Beekeepers, page 492).

Good Management might well be the title of the contribution on page 467. For to continually work towards good combs and good queens certainly is that, and of course making sure that the upper story of a two story hive is well filled with honey is certainly advisable also. I agree that annual requeening is not as desirable as **year around** replacement of poor queens. And may I add just a word about not liking queens to begin laying early? I used to be of that opinion, too, but soon came to realize "just how can I stop it?" I guess it is the beekeeper's job to supply his colonies with plenty of honey and pollen and let the bees decide the rest.

Scale hives are both of interest and of value. After a few years of use, much can be estimated as to possible time and duration of various flows, etc. But in Method No. 2 detailed by Mr. Becker (page 471), would not the relative position of honey within the hive also make for variation in the correctness of the readings?

Heat production of the honeybee cluster comes in for some interesting discussion and speculation (page 472). Too often we merely take things for granted, but it actually is a marvelous feat of the bees in changing a relatively small quantity of honey into many units of heat. Whether it actually partakes of atomic energy or not, it is certainly worth much study. That a cluster of bees and a small amount of honey are not the same as far as classification of warm or cold bloodedness is concerned is certainly true but perhaps just not well realized many times.

Honey salesmanship will be needed again, when our present "ration it out" period is over. And Milton Stricker's methods are well worth a careful reading (page 474). Good honey and a good (and attractive) demonstrator to handle the display of bees and honey make a combination that could not help bringing results.

Honey cookery aromas would not be a bad sales "argument" either. But shame on you, Mrs. Nielsen, for suggesting **hiding** the results! Aren't they made for eating? (Seriously, I do sympathize with you or any other cook in trying to save a few things for a **little** while.. You can't be forever a-baking, even if honey foods are that good!)

Good beeswax can be produced only by proper handling in collecting and rendering (page 477). It is really foolish to darken capping wax by mixing in old combs, scrapings, etc. And all should keep in mind Mr. Root's admonition as to care when heating beeswax. It is a dangerous job at best unless one has proper equipment.

Bee eating birds never become a serious problem in the ordinary beeyard, but where only a few hives are kept or if near a queen rearing yard, some species may do considerable harm (page 478). But I do believe that extreme care should be taken to make sure that they are actually doing measurable harm. Birds are good friends to all of us.

Carniolans gave good results for A. V. Thomsen, and results are what pay off (page 480). The advantages he found in them are many and should induce others to give the race a trial. It may well be, also, that the particular **strain** he obtained was unusually good. This is true of other bees also.

Light winter packing has another advocate. I am not going to "descend" upon you, Propolis Pete, for if the bees have taught me anything at all, it is that it is never wise to be too sure. It may well be that a few years from now heavy packing may be entirely "out"—as its users are certainly becoming fewer each year (page 483).

Middle River, Minnesota.

Wintering Bees

Hardy Stock is Important

By John G. Jessup

In discussing the subject of wintering, has enough emphasis been placed on the hardiness of stock? And, you may ask, just what is hardiness of stock?

Well, some strains show up in our yards as having a great advantage over others, and this seems to be linked primarily with the ability to requeen themselves. Some of our apiaries have 10 percent of the colonies developing into a hopelessly queenless state, this condition appearing at any time of the year. Of course, if these colonies are left through the winter, they are dead in the spring. Add to this the greater tendency of some colonies to dwindle in numbers from fall to spring and you have indicated lack of hardiness. A colony that winters satisfactorily will have a hive full of bees in the spring as well as in the fall. We winter only the best. A can of Cyanogas is always at hand when putting bees down to winter quarters. Cross colonies or those having drone layers are killed. It is better to kill them and save the honey they would eat than to unite with a good colony. Next spring this brood nest of honey and pollen will be just the thing to use for making a division.

So we suggest as our first requirement for successful wintering a hardy strain of good bees. Add to this a strong queen, 60 to 75 pounds of honey, and adequate protection. If you give each hive an upper entrance in addition to fulfilling these requirements, there will be no need to worry about winter losses.

In standard ten-frame equipment we winter in either two or three stories. If there is too much brood in the second story to permit an adequate supply of honey as has been the case this year, we leave the third story on, full of honey. This gives the honey needed and, in addition, retains the pollen in the body just above the bottom board. It also makes one less super of combs to store the honey in the honey house this winter. Of course, only very strong colonies should be left with three stories. If all colonies are wintered in two or three story standard ten-frame bodies, it is easy to give a middle entrance without any extra equipment. Simply slip the upper hive body back to allow an entrance just the width of the rabbet. There will be no entrance at the rear.

Wrapping or packing these strong colonies is not essential as they will winter satisfactorily without it. However, wrapping with 15 lb. asphalt felt saves enough on the consumption of stores to make it pay. It absorbs the heat of the sun and makes stronger colonies in the spring. It is especially desirable if the apiary does not have a good windbreak. Hives may be wrapped in pairs. Remove the metal covers, close the bee escape hole in the inner cover, push the hives together and wrap a sheet of asphalt felt around both hives. The felt is kept in place by nailing 16 inch lath as near the ground as convenient. Fold in the top edges and lay another piece of felt over the top for a cover. Fold the edges down and nail in place with more lath. This packing can be used over and over for four or five years, so the cost is small. Cut a lower and middle entrance, ½ by 1 inch, and the job is done.

Some of our beekeeper friends insist that it is more profitable to kill off colonies in the fall and replace with packages in the spring. Now we will go a long way for a friend but have yet to be convinced that packages will produce enough more than wintered-over colonies to pay for the chances involved. In fact, we still maintain that it is money ahead to winter and make divisions in the spring.

Perry, Iowa.

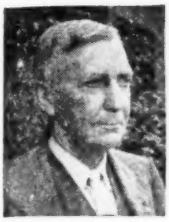
[Pushing a hive body or super back, as Mr. Jessup does, to make a ¼ inch opening in front, just above the rabbet, is one of the handiest ways to make a front upper entrance. There is a narrow ledge for bees to light on. This small opening in front does not make an opening behind. The winter opening can be made near one corner of the hive if desirable and can be closed easily in the spring.—Ed.]

Our Cover Picture

This shows part of the old basswood apiary at Medina where queen rearing was carried on for many years by the late Mel Pritchard. The late A. I. Root had this grove planted to basswood trees nearly 60 years ago.

From North, East, West, and South

SOUTHERN CALIFORNIA, Sept. 3



Weather: The days are warm to hot and nights are cool to cold. Some heavy thunder showers occurred in the mountains but nothing that would help the beekeeper. Some people think that our seasons go in wet and dry cycles and that we are nearing the end of a wet cycle. Here is hoping that they are mistaken.

Crop: The crop varies greatly from the fellow who remained on his location in the hills and got little or nothing to the fellow who moved to the orange and got 20 or so pounds per colony. The fellows in the great inland valleys seemed to fare the best, making as much as 120 pounds per colony. Circumstances seemed to help the honey producer. Owing to the shortage of help and baling wire, many thousands of acres of alfalfa were let go weeks longer than is usually the case before cutting. Consequently there was a heavy bloom and bees reaped the benefit. Usually the demand is for hay from alfalfa which is cut just as it begins to show bloom. This year the demand was so great that no questions were asked and they were glad to get the hay.

Market: Needless to say the demand for honey is far beyond the ability of beekeepers to supply. While the ceiling is off, prices skyrocketed for those who had any honey.

Miscellaneous: With few exceptions the crop is gathered for 1946. Bees are in good shape for winter. Some beekeepers are planning for considerable increase next year. The bee business is becoming more and more a young man's game. Migratory beekeeping—now so generally practiced—calls for the best there is in a fellow. Days and nights are tied together. A strong back and a go-to-it-while-you-are-young spirit (for when you get old, you can't) are essential. If the pasture is short in one location, pick the colonies up and try another location. With thousands of acres of native honey producing plants and shrubs being plowed under or burned over, the beekeeper is crowded nearer and nearer the outskirts of civilization. New sources such as orange, alfalfa, thistle, athol, etc., are to a certain extent filling in, but will they be able to fill the gap?

Several large outfits have changed hands since our last letter. One thing is certain—the demand for bees is always greatest just before or at the beginning of the honey flow. Few businesses offer as good dividends as bees at this time.—L. L. Andrews, Corona, California.

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MANITOBA, Sept. 4

Weather: As this is the first report from Manitoba since February we have the whole active season to review. Spring weather came bright and early in March this year and with pollen coming in freely and the brood nests expanding, colonies made good progress. Around the middle of May several days of severe frost caused an unfortunate setback by killing much brood and eliminating fruit bloom as a source of nectar.

Recovery from this setback came slowly as June was very dry and many colonies had to be fed until early July. In view of the scarcity of sugar many colonies were skimped on their feed supply with the result that they were sadly lacking in a field force when the flow did start. Rains in late June and early July saved the day and about four weeks of fine weather for secretion and gathering of nectar meant that a reasonable crop was gathered in most areas and once again the majority of the beekeepers breathed easily. Rain and cold in early August cut the flow off with little nectar coming in after that.

Honey Plants: The mainstay of Manitoba beekeepers has always been sweet clover. For the last six years the sweet clover weevil has

become a progressively worse threat to sweet clover and, as a result, to the beekeeping industry. It has been particularly effective in damaging sweet clover along the Red River Valley and many beekeepers in that area have been getting very small crops recently. No satisfactory control is being practiced to date and the fungus which is controlling the weevil in Illinois and Ohio has not been effective in our dryer climate.

Years ago the sow thistle used to be an important honey plant in Manitoba but between the farmers and the grasshoppers it went into an eclipse. This year it staged a surprising comeback and undoubtedly bolstered the total crop considerably. The crop will be close to average.

Market: Marketing will constitute one of the least of the beekeepers' worries this year with the Co-op again handling most of the commercial honey. The ceiling price for honey has been set at about 1c per pound higher than last year for all types of sales. When sugar becomes plentiful again it seems inevitable that many of the present industrial users of honey will swing back to sugar. Also the competition from jams and jellies will increase and in order to maintain a reasonable price for honey the per capita consumption will have to be increased. This should not be too difficult with the present per capita consumption being only 2.5 lbs. In anticipation of the day when advertising will be needed the Canadian Beekeepers' Council is building up a fund through the application of a voluntary levy of 1/5c per pound on all honey containers. Cans upon which the levy is paid are stamped with a 5 point star. In general the beekeepers support the plan although some oppose it. Manufacturers of competing products undoubtedly hope the beekeepers fail in the attempt.

Miscellaneous: The annual convention of the Manitoba Beekeepers' Association will be held at the Marlborough Hotel in Winnipeg, November 11th and 12th. There is no substitute for the annual convention to revitalize beekeepers to tackle their business problems and also to provide an opportunity for a review of the status of the industry so that mutual problems may be ironed out. —E. C. Martin, Provincial Apiarist, Legislative Building, Winnipeg, Manitoba.

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ILLINOIS, Sept. 5

Weather: Much has been said about the weather, but what good does it do? We have had about every extreme in weather conditions this season. March started out real warm. Bees built up rapidly on elm, maple and other spring blossoms. More pollen was gathered this spring in March and April than in my 30 years of beekeeping. Our bees could have gathered a crop of clover honey in the middle of April had clover been in bloom. We had some freezing weather in May. This freezing did considerable damage to our honey plants. In the northern half of the state, there has been a drought, burning pastures and roadsides to a brown color. Downstate and especially in the area near St. Louis, floods were frequent. We would like to think the OPA was trying to run the weather, too. Today, September 5th, the temperature is 76, the warmest day in two weeks. It is reported our August was the coldest on record. Frost was reported for the 29th and 30th.

Honey Plants: Prospects for a fall crop of honey will vary from poor to ideal depending on rains earlier in the year. Some areas are a mass of blossoms but too cool for bees. Heartsease bloom is almost solid pink in some of our soybean fields. A few miles south, the color changes to a yellow or gold as fields are full of Spanish needle. Clover still appears on the forgotten list of farm plantings. This is especially true of sweet clovers. Hubam continues to interest me very much. Any farmer-beekeeper can, by planting Hubam in his spring oats, realize **five crops the same year**. First the oats, then the straw (which is always in demand), honey crop, combining the seed for a seed crop, and the legume to plow under. It has yielded well in the past two years. I have watched it.

White Dutch clover was our main

honey plant this year. The quality of the honey was excellent.

Miscellaneous: Beekeepers were really in a dilemma this year in regard to honey prices. No person knew what to charge or what to pay. We hope we can get our feet back on earth once again and can enjoy producing and selling without all of this "under the counter" and "whispered prices" we have heard so much about. Almost every beekeeper wants to be honest. He will remain honest if he can be allowed to think for himself again.

Bee meetings throughout the state have been well attended with one or two exceptions. Greater interest is constantly being shown in beekeeping. At almost every gathering one meets with a new crop of beginners.

We have just finished our 1946 State Fair. Our honey show, although somewhat smaller than in former years, was a very good show. Thousands of visitors filed past the exhibits each day, and one was hearing favorable comments continuously. These comments came from our Governor Green, the Director and the Assistant Director of Agriculture, and other state departments. Next year we hope to enlarge our number of exhibitors and premiums offered.

We are now in one of the greatest tomato growing sections of the country. One farm has 270 acres of tomatoes. We hope someone develops a honey plant that will take the country as tomatoes are taking it now.—Carl E. Killion, Paris, Ill.

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IOWA, Sept. 9

Everyone is interested in the honey flow. Conditions in Iowa have been somewhat spotted for the season up to date. Some sections have had a very poor crop with bees reported in need of feeding at this time. Other sections have had a fair crop with surplus reported of from 25 to 60 pounds per colony. There are small areas where the surplus crop may reach 100 pounds per colony. A fall flow is being experienced in many sections which may help the winter stores situation but will probably not influence the total surplus for the season.

This is a very discouraging situation in view of the effort which was made to meet the request of the government for an increase of 8% of the colonies operated, together with the handicaps of labor and supplies which were experienced in an effort to increase units operated.

The colony condition at the present time is probably below average. There has been an unexpected deterioration in queen condition. The character of the honey flow has not been conducive to building up a population and the stores may be short.

The market situation is chaotic. Producers need to market their honey to obtain funds. Producers would like to receive the benefits which are obtained by many other articles produced, either from the land or manufactured. There is considerable pressure on producers to sell outside the regulated market. It is unfortunate that this condition broke just as the product was ready to be put on the market. There are a considerable number who are inclined to feel it is a matter of discrimination in the present situation.

Miscellaneous: The meeting of the National Federation of Beekeepers' Associations at Atlantic was considered a great success by those who were fortunate enough to be in attendance. It was a pleasure for Iowa to serve as host for this national gathering.

Since the meeting on July 12th the Pellett Gardens have enjoyed many visitors. These have originated in twelve states and not a day passes but that three or four visitors register for a tour of the gardens. Interest is developing rapidly in the study of honey plants. Mr. Pellett expresses his feeling that the field of research with honey plants is just being opened up.

The state has enjoyed visits by foreign representatives who were interested in making a study of beekeeping conditions throughout the United States. Dr. Butler spent a short time in the state becoming familiar with the research program which has been under the supervision of Dr. O. W. Park at Ames. Recently Mr. Rousseau and wife spent some time becoming familiar with

producing conditions, the research program, and the general educational program, including inspection, which is being carried forward for the beekeepers of Iowa.

Mr. Li, Chen Kang was in Ames for a short period making final preparations for his return to China. Mr. Li. spent six months at Ames as a part of a group of students from China who were studying extension methods in the United States. Each student had some particular phase of agricultural production as his special interest. Mr. Li made a special study of beekeeping conditions in this state and enrolled in class work. It is fortunate that he could enjoy a contact with the Iowa Beekeepers' Association as well as the Annual Short Course for Beekeepers of this state.

Special mention should be made of other out-of-state visitors. Mr. William Atchley of California, Mr. O. R. Wanty, of Michigan, and Mr. B. V. Dunavan of South Carolina.—F. B. Paddock, Ames, Iowa.

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WESTERN COLORADO, Sept. 7

Crop: The 1946 crop has been disappointing to most Western Colorado beekeepers. The season has been the driest since 1934, and there may have been less moisture than in that year. There is no doubt but that this has been the most difficult season for honey producers in 12 years.. Nevertheless those beekeepers who left ample stores last fall or who fed syrup before brood rearing was curtailed this spring were able to produce colonies that gathered a surplus of 60 pounds or more.

Condition of Bees: There is going to be even greater temptation to take too much honey this year in order to pay expenses. In the end a loss will result. It would be better in those cases to take all the honey, gas the bees, and begin anew with packages next spring. A fall flow is unlikely following the extremely dry summer. Colonies are smaller than normal for this time of year.

Price: During the price holiday in July honey rapidly advanced in price from 20 to 30 percent. It moved quite freely on this basis in this area as there was nowhere near enough to supply the demand. When ceilings again became effective beekeepers stopped selling honey (openly, at least) and as this is written we are ending one of the most disconcerting months in our memory. We, ourselves, were literally driven to selling honey in small containers at the old ceilings, retail. But no one was satisfied. The honey customer wanted more honey than we would let him have, and not always to replace a shortage of sugar either, though that is why most of them wanted it. If they could buy two 2 lb. jars at 25c per pound they wanted to know why they could not buy 60 or 40 or 20 pounds at the same price per pound. When told that this would be black market the stock reply was, "What the hell do we care about black market?"

And when our wise regulation makers in Washington finally act that is where most of the honey in the West will have gone. Repeated appeals have been made for decontrol — organized, orderly appeals from nearly all beekeeper organizations from the National Federation on down to local organizations.

The State Plant Board of Florida has authorized the use of sulfathiazole in treating bees affected with American foulbrood, under certain conditions. The treatment is to be applied under the direction and supervision of the state apiary inspection force.

We know that beekeepers all over the United States are treating their diseased colonies with sulfathiazole, and, in many instances, they are keeping the disease hidden from the apiary inspection forces. You are correct in your statement that it would be better to have this treatment going on under the supervision of the apiary inspection forces.

We are preparing an article in regard to this treatment, and will try to get it to you in time for publication in the November issue.—Robt. E. Foster, Apiary Inspector for Florida.

Requests have poured in from Senators and Representatives alike — for over a month they have been going in—and honey has still had no action taken in its behalf.

Only the very timid and the very conscientious beekeeper will have sold his crop at the old ceilings; and only the brave beekeeper with some strong organization behind him will have held it. A price of $15.00 per can has been offered to most of us in this section. I believe anyone could get it who wanted to. There was quite a lot of honey trucked to Denver at prices of about that level, no questions asked.

Nero fiddled while Rome burned. So far I have been unable to find out what Secretary Anderson was doing while the 1946 honey crop went to the Black Market.—John W. Holzberlein, Grand Valley, Colorado.

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MINNESOTA, Sept. 11

Weather: Reviewing the season, we had May frosts, a July and August drouth, and September rains. The late frosts killed the fruit bloom, basswood, and raspberries. The drouth put an end to the main honey flow about August first.

Bees: Most apiarists fed their bees well last spring so that colonies approached the main flow in prime condition. About 5 percent swarming is reported, although the writer had one of his worst years. A dwindling flow since August 1 has put colonies in favored locations in fair wintering condition, while elsewhere for economical management colonies are beng killed to be replaced by spring packages. My Caucasian colonies are in far better condition than the Italians.

Crop: "Considerably below that of last year", reports Dr. Haydak, and that seems to sum up for Minnesota as a whole. "Poorest in 21 years", says Gordon Bell, of Badger. Others report yields 60 to 125 pound averages, and this variance in honey yields seems traceable to the May frosts, the drouth, and the scarcity of sweet clover.

Miscellaneous: The recent rains should put honey plants in excellent condition for wintering.

Because of the uncertainty of Government action on honey prices, there has been more variance in prices than for many years. At the same time the demand has been so great that some beekeepers are already sold out. With inflation prices on operation costs, and generally higher living costs, honey prices must stay up or beekeepers will be left holding the well-known bag. Retail prices on 5 lb. pails have been from $1.25 to $1.50, with other sizes in a corresponding range of prices.—Bruce Morehouse, Montivedeo, Minn.

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SOUTHERN ALABAMA, Sept. 10

Weather: The season for 1946 has been very unusual. Starting in with rain and except for a lull during April and another longer one during August the rains would have been continuous. During a part of June and July the humidity was too great to extract honey. We had two showers today but as September is usually a dry month we do not expect much rain in the next three weeks. For this part of the country we have had a very short summer. We have all the signs of the approach of fall, such as hot days and cool nights, and the various insect sounds that go with fall weather.

Honey Flow: Our major honey flow which starts the last week in April from gallberry started well but was broken by showers and ended with a long rainy spell. Many supers were only partly filled. The summer titi coming on in June was somewhat better than usual in spite of the rains and helped to fill many of these partly filled supers. The two together made up a fair flow for the season. During September we do not have a flow of any great importance. Mexican clover and field peas are the principal nectar plants during this month.

Miscellaneous: In spite of our crop of honey being approximately 15% titi it sells well. One customer from the middle part of the state says, "It's not as good as last year but is still better than what I can buy else-

where." The summer titi does not make a very good table honey. It is of a dark reddish color and when mixed—or should I say blended—with the lighter grades darkens them but does not impair their flavor too greatly provided of course the percentage of titi is not too great. As a comb honey it is quite unsatisfactory.

Colonies are in very good condition this season. Hives are well filled with honey and pollen. They should do well with fall brood rearing.

I have noticed with interest how some beekeepers claim to have had heavy losses of bees during showers of rain. This may be so in some parts of the country. It's quite possible that altitude and humidity may have something to do with it, but in our climate the honeybee seems to understand the weather. I doubt if very many bees are lost during showers here.—H. G. Miller, Vinegar Bend, Alabama.

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TEXAS, September 5

Weather: Each month during the first half of the year showed rainfall above normal for most sections of the state. July and August brought exceptionally high temperatures and a severe drought. During the last week of August the heat and drought was broken by a general rainfall of from two inches up to flood proportions. A larger part of the state received a good drenching which was needed badly and which brought relief to farmers, stockmen, and beekeepers.

Bees and Plants: During July and August with little or no nectar and pollen available from the field, the bees were rather inactive with a minimum of broodrearing. This condition is normal for most of South and Southwest Texas. The return of soil moisture brought many plants into bloom. These plants provided nectar and pollen which the bees gathered eagerly and broodrearing was resumed. Many of our native plants are generally quite responsive to sudden rainfall and they may be counted upon to provide nectar and pollen. These include white brush, rock brush, evergreen sumac, ceniza, and others. Our fall blooming annuals are less promising, since these are less resistant to drouth. Broom weed seems to have survived in sufficient quantity to augment the fall honey flow.

Crops and Market: Over most of the state the honey crop of the year was rather spotted. In southwest Texas the crop was largely from mesquite and catsclaw and came rather early. The June mesquite flow was exceedingly variable, and horsemint, over most of the state, produced a rather light crop. In the black land area large acreage of Hubam clover was grown for seed. This produced perhaps the largest crop of clover honey Texas has ever harvested. The clover area was well stocked with bees and a surplus as high as 100 pounds per colony was reported. The retail market is well supplied with honey. Many producers are selling direct to the grocers.

Miscellaneous: The Texas Beekeepers' Association and the Texas Beekeepers' Auxiliary held their annual meeting at Greenville, Texas, on June 10 and 11. This was an enthusiastic and well attended meeting and a fine program was presented. The meeting for 1947 will be held at Texas A. & M. College. Officers of the association for the coming year are: J. Claude Wilson, North Pleasanton, Texas, President; James Petty, San Angelo, Texas, Vice-president; W. C. O'Neal, Emhouse, Texas, Secretary-Treasurer. Officers for the Beekeepers' Auxiliary are: Mrs. Hugh Shofner, Greenville, Texas, President; Mrs. James Petty, San Angelo, Texas, Vice-president; Mrs. Howard Weaver, Navasota, Texas, Secretary-Treasurer.

Mr. Claud J. Burgin, Queen Bee Breeder, State Apicultural Laboratory, was transferred to the position of Chief Foulbrood Inspector, of the State Apiary Inspection Service, effective September 1. This position was held by Mr. Burgin prior to his entry into the armed forces of the recent war.

Texas beekeepers regret to learn of the retirement of Mr. B. I. Solomon, manager of the A. I. Root Company of Texas, after more than 30 years with this company. Mr. Solomon is succeeded by Mr. D. C. Babcock, who has served The A. I. Root Company, at Medina, Ohio, for more than 24 years and comes to Texas well qualified for his new position. —A. H. Alex, San Antonio, Texas.

ONTARIO, Sept. 4

At this date beekeepers in this part of Ontario definitely know that there will be no more honey gathered this season. We can recall conditions for over 60 years past, and no surplus has ever been stored here after September 1. True, in some parts of the Province honey is stored from goldenrod, notably in the southwest counties, but in all our experience it is doubtful if we ever secured a pound of honey from that source.

With the season for 1946 practically over, we can take stock and the great majority of the beekeepers of Ontario will agree that it has been the most disappointing year in at least two decades. Thirty four years ago we did not wet the extractor, but every year since that time we have had some good honey in some of our apiaries. But this year with apiaries in four counties, we have no really good honey any place. The quantity is just as bad or worse from the beekeeper's standpoint, for honey would sell no matter what the quality is like, but we have little honey of quality such as it is. Why? That surely is hard to explain, for while weather was not always ideal, and clover was not as plentiful at some locations as in other years, yet the fact remains that in some past seasons when things did not look nearly as good, we have secured fair crops.

Then again in some parts of eastern Ontario, notably in the Ottawa district, a good crop of good quality was secured. Surely there are a lot of things that we do not know regarding conditions favorable or otherwise to nectar secretion. At two apiaries about 15 miles from home things did not look very promising, and the boys moved a number of colonies about 60 miles northeast to locations that had a good acreage of clover. While they moved the strongest colonies, the bees left here stored more honey than those moved away.

Bees were working all through late June and the first three weeks of July but never got much more than a living, and as they were constantly working and getting so little, the death rate was higher than usual and colonies never built up to great strength as they do where a normal flow of honey is on. It will indeed be a hard year for many who depend on bees for a living, as last year was very poor also. We know of some returned men who put their all in bees last spring and of course they have nothing from the bees and in many cases will have to buy sugar to feed for winter.

Very little buckwheat in most localities this year, but even where the acreage was normal, almost no nectar was stored as August was abnormally cool and dry. Conditions during past month where most of our bees are located (in four counties) have been none too good as the very dry weather has killed the white Dutch clover and also dried out much of the spring seeded alsike, Ladino, and other clovers.

While good crops of honey make us feel like keeping bees exclusively and not bothering with any other business, two near failures in succession are making many consider some other line of work as a real necessity. Personally, we have had a small mink ranch for a number of years and three years ago we purchased a few Silverblu Platinum mink, rapidly changing all on the ranch to that mutation. Result is that what was but a hobby of minor proportions has developed to the extent that it is a case of the "tail wagging the dog" as most of our income has been from the mink in the past two years.

Quite a number of beekeepers have been trying out in a small way the new treatment for AFB, and judging from reports received, with satisfactory results. We personally know of at least one case where the beekeeper put package bees on combs that had foulbrood scales in them and later these bees were inspected by the local inspector and passed as being free from the disease. Whether they will stay clean we are not prepared to say, but it certainly looks encouraging so far.

P. S. Of course the new "treatment consisted of feeding the bees svrup medicated by adding sulfathiazole sodium.—J. L. Byer, Markham, Ontario.

Editorials

Honey Price Members of the Honey Industry Advisory Committees for both the United States Department of Agriculture and the Office of Price Administration met September 10th and 11th in Washington to discuss the confused state of honey prices under the re-established price control. The committees represented a cross section of the industry and were unamimous in urging that some solution be quickly applied to the chaotic condition that now exists in the honey market. The wide difference between the 12c ceiling price established in 1942 and the present going price of bulk honey could no longer be ignored without a complete breakdown of law and order in the industry.

Both OPA and USDA are by now well aware of the problem and either have the power to decontrol the honey price or bring the ceiling price into balance with production cost and existing prices. Both of these departments have been reluctant to take action that might set a precedent for other branches of the sugar industry despite the small size of the honey industry and its real economic importance in the field of plant pollination.

Since there seems to be no satisfactory solution to the problem other than decontrol it would seem that an early announcement of decontrol of the price of honey might reasonably be expected.

Beehive Production Threatened By issuing simultaneously two orders the Office of Price Administration and the Office of Civilian Production have threatened, if not very nearly stopped, beehive production. On August 28th the C.P.A. amended Direction 1 of PR 33, thereby freezing all Western Pine Shop lumber including the 4/4 Shop Common Ponderosa Pine hive lumber, for use exclusively by the millwork manufacturers. At the same time OPA issued RMPR 94 Amendment 5 which channeled all Shop and Shop Common Western Pine to millwork manufacturers, by permitting them to pay $5.00 per thousand board feet more than any other user. It is true that common grades and clear lumber are still left for limited hive production but unfortunately most bee supply manufacturers are unable to purchase from any but old established sources of supply and in most cases these mills make principally Shop grades of lumber and do not have available in sufficient quantities the unfrozen grades of pine.

The United States Department of Agriculture is interested in the problem and help may be expected from this source. Also the Lumber Division of the Civilian Production Administration have agreed to review the plight of the bee industry. It seems unthinkable in the light of present knowledge of the vital importance of the honeybee to general agriculture, through pollination, that the government in its haste to furnish complete and quick housing for its people will permit the small but vital bee industry to degenerate. We doubt if any other use of lumber per square foot will produce as great a contribution to the welfare of this country as will the comparatively small footage of lumber required to keep the bee industry functioning.

It is hoped that these government orders will be quickly modified before too great damage is done to the bee industry.

Effect of Occasional Sunshine During Winter on Bees in Unpacked Hives Several writers who favor no packing have argued that occasional sunshine during mid-winter is beneficial in that it enables the bees forming the outer shell of the cluster to warm up and move inside where they can get honey. It has also been argued that heavy packing will prevent any warmth of sunshine from reaching the cluster and that the outer shell of bees, being in a constant temperature of around 40°, would die of starvation, drop off the cluster, and that the process will continue until the cluster of bees is reduced considerably.

If there were no packing or a single wrapping of black building paper, the sunshine could penetrate to the cluster.

The figures presented by C. H.

Jamieson, of the Central Experimental Farm, Ottawa, Canada, on page 487 of September, 1946, issue indicate that heavy packing may be detrimental and that little or no packing would be beneficial.

To Pack or Not to Pack During the years we have tried to tell beekeepers that if they are having success with their present method of wintering, to stick to it rather than to experiment with new methods of wintering.

Quite a number of beekeepers in the latitude of Ohio, Pennsylvania, and Indiana are not packing their bees during the winter. A number of commercial beekeepers farther north in Ontario, Michigan, and Wisconsin, who at one time packed their bees heavily, are now using only waterproof building paper, such as Sisalcraft, leaving a small hole in the paper at the front of the hive entrance. This method of packing is not costly, provided of course the building paper is available. The paper may be left on the hive in the spring during the chilly weather. It would seem that such protection is perhaps more valuable in early spring than it is in the winter. After all, it is the "springing" of bees that constitutes a problem.

It seems essential that an upper entrance of some sort be left in each hive for expelling excess moisture that may accumulate during the cold winter months. Some are now cutting a notch in the front of the rim of the inner cover and inverting the inner cover. The telescope cover, commonly called the outer cover, is pushed forward so that when the bees leave the upper part of the hive through the notch, usually one inch wide, they may be able to get out through the space left between the front of the inner cover and the front of the hive. Some of the beekeepers in the far North close the bottom entrance entirely.

Whether the beekeeper packs or doesn't pack he should have each colony strong in bees and well supplied with stores of good quality.

Cellar Wintering Some years ago this method of wintering bees was practiced quite generally, especially throughout the far North. Of late it has been abandoned to some extent, although there are some commercial beekeepers who still practice cellar wintering. It has some advantages as well as disadvantages. The disadvantages are that if the cellar is not properly constructed and if the bees do not have stores of good quality there may be a considerable loss. Properly constructed cellars and good stores should reduce winter losses to a minimum. It usually pays to feed each colony a five or ten pound pail of thick sugar syrup during the fall prior to putting the bees in the cellar. This feeding tends to offset the possible damage done by late gathered inferior quality honey.

The main advantage of cellar wintering is that it means a saving in stores. From records kept some years ago when we did some cellar wintering here in Medina we found that the average loss in weight of single story colonies wintered in the cellar, between late November and early April, was about ten pounds. The average loss of weight in similar colonies wintered out of doors was almost 20 pounds.

Briefly, a well constructed bee cellar should have its top well below the frost line and the cellar should be absolutely dark with some ventilation, but not too much. Bees should be put in the cellar late in November, following the last good cleansing flight, and should be removed from the cellar at the time the first early pollen is available.

LATE NEWS

HONEY PRICE DECONTROLLED

The Office of Price Administration announced today, September 27th, that honey prices are decontrolled at all levels by order S. O. 132 Amendment 59.

Alfalfa More Plentiful Because of Labor Shortage In one of the western states a beekeeper reports an increase of alfalfa bloom and a larger honey crop because of the lack of help to cut the alfalfa and a shortage of wire to bail out.

Some years ago, in Western Ohio (1932, to be exact) bees stored an unusually large crop in a certain apiary surrounded by fields of alfalfa. In that locality there was very little sweet clover in evidence. Farmers

cut the alfalfa three times. During that season—one of the driest we have ever experienced — farmers could not get the alfalfa cut fast enough, so the bees took advantage of this situation and stored a big crop, an average of 230 pounds per colony. Conditions were just right that year for alfalfa to secrete nectar. It is seldom our bees in Western Ohio store a surplus from this source.

Spotting Bee Locations by Plane

It seems probable that in the near future the airplane of the helicopter type will be used for operating out apiaries. See page 159 of the April, 1944, Gleanings for a sketch of a helicopter alighting in an apiary.

Already some beekeepers are using planes for selecting suitable apiary sites. When travelling along a road it is impossible to see very far beyond the fences. A plane will give one a bird'seye view of the territory. If the plane flies low enough it is possible to see fields and crops being grown.

At present, when ample pasture is so essential for securing crops of honey the airplane may play an important part in the selection of good apiary location.

Eggs All in One Basket

It was Benjamin Franklin who advised against putting all of our eggs in one basket. That advice may apply to beekeeping, especially at the present time. However, commercial beekeepers who are engaged in beekeeping exclusively as a sole source of livelihood must be prepared to meet the emergencies that come to any business and should have a financial reserve or backlog to carry them over a lean year. This may be easier said than done.

Most commercial beekeepers are equipped for migratory beekeeping. If prospects are not promising where bees are located, the apiaries are moved to better pasture. This means extra labor and expense, but it is better to move and secure at least a fair crop than not to move and get no surplus. Occasionally bees are moved and a crop does not materialize. This is indeed discouraging.

As already mentioned editorially, our industry is urgently in need of better bee pastures. The large acreages of corn, wheat, soybeans, sugar beets, oats, and what not, all of which are important, have crowded out legumes, which not only supply nectar and pollen for bees, but increase the fertility of the soil.

Soil conservationists are advocating the planting of more legumes to improve the soil. When the legume acreage throughout the country is increased, especially clovers that yield nectar, it will be safer for beekeepers to put all of their eggs in one basket.

Let's Continue to Boost the National Federation

Some of our readers, especially new subscribers, may not know that our industry has a well organized **National Federation of Beekeepers' Associations,** of which John W. Holzberlein, Jr., Grand Valley, Colorado, is President; Lewis M. White, Portland, Oregon, Vice President; and Glenn O. Jones, Atlantic, Iowa, Secretary-Treasurer. The executive committee consists of five members selected from the various regions of the U. S. A.

The committees of our Federation some of which are: Beekeepers' Rights Committee, Honey and Pollen Plants Committee, Veterans' Rehabilitation Committee, and Committee on Uniform Caps for 60 Pound Cans are functioning.

Glenn O. Jones, Secretary-Treasurer, is devoting full time to his work and is doing a marvelous job. George Rea, of Reynoldsville, Pa., well known to beekeepers everywhere, has been assisting Mr. Jones of late, doing field work. Both Mr. Jones and Mr. Rea have been attending state beekeepers' meetings throughout the country, disseminating useful information and feeling the pulse of American beekeeping.

A Federation News Letter to members is issued from the office of Mr. Jones each month giving the latest developments in our industry.

How can we help boost our Federation and, incidentally, our industry? By affiliating with it. An individual membership fee is only $5.00 per year. Mail your check to Glenn O. Jones, Atlantic, Iowa, who will appreciate your financial aid as well as your moral support.

Homemaking Chatterbox

By Harriett M. Grace
Director
American Honey Institute

The rustle of fallen leaves, the drifting smoke of a bonfire, and the keen, penetrating crispness in the air, all indicate that another summer has been left behind. This is the season when the men-folks oil their guns and take Rover for a run through the woods or down by the lake to see what their marksmanship can bring down for dinner. But, when the ducks or pheasants are brought home, it is up to the women-folks to carry on from there.

To absorb the strong flavor which many people find objectionable in ducks, lay cored, quartered apples inside, and remove before serving. Celery and onions chopped and stuffed into the cavity will improve the flavor; this, too, should be removed before serving. Wild ducks are likely to have a fishy flavor which can be removed by placing a small peeled carrot in the duck, plunging the fowl into boiling water and parboiling for about 10 minutes. If you prefer not to parboil them, rub lightly with a cut onion and put three or four raw cranberries in the cavity before cooking.

To make your roast duck into a supremely elegant dish, serve this Orange Raisin Sauce with the fowl.

Orange Raisin Sauce

One cup seedless raisins, 1 tablespoon lemon juice, 1 cup water, ¼ cup honey, juice and grated rind of 1 orange, and 1 tablespoon cornstarch.

Put raisins and water in sauce pan. Simmer until raisins are softened. Mix honey and cornstarch together until smooth and add to the raisins and water, stirring constantly. Cook until clear and thickened. Remove from heat and add fruit juices and rind. Serve with roast fowl.

* * * * *

Before the era of automatic refrigerators, homemakers were rarely without a supply of sour milk and cream for baking purposes. Now, however, the milk must be removed from the refrigerator beforehand to sour. If you find it difficult remembering to plan that far ahead, you can sour the milk quickly by adding 1½ tablespoons of vinegar to 1 cup of milk. Undiluted evaporated milk may be soured in the same way and used in any recipe which calls for sour cream.

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For an elegant dessert which is simple to prepare and which makes use of leftover cake, try this. Tear leftover cake into small pieces. Add broken nut meats and chopped candied cherries. Fold into whipped cream and chill thoroughly. Serve in sherbet glasses.

* * * * *

A new food product recently developed by the United States Department of Agriculture is a crisp, toasted wafer resembling the potato chip and made of potatoes and skimmed milk. Since it contains no fat, the wafers can be kept for long periods of time in moisture-proof containers without becoming rancid.

* * * * *

Here is a tip to save wear and tear on glass measuring cups. When you measure boiling water or other hot liquids in the cup, put a silver teaspoon in the cup first and then pour in the liquid. The spoon will absorb enough of the heat to prevent it from breaking the glass.

"We found it, Bill.....it's OUR bee tree."

80 Years Among the Bees

By E. R. Root

How Early History Backs Up the Present Day Thinking and Practice of the Importance of Strong Colonies Reared in a Brood Nest Larger than a Single Langstroth Hive Body.

In the discussion of large and small hives I have already shown that Moses Quinby was not the first one to introduce the importance of large colonies or large hives, either in one or two units. It appears that Quinby was the first to introduce the idea of a large brood frame, much larger than the Langstroth, but when he adopted the movable frame he did not use a brood nest which in cubic capacity was larger than a 10-frame Langstroth. We find that Quinby used 8 of those Quinby frames, apparently satisfied that the Langstroth dimensions of a colony brood nest were correct.

It was not until years afterward, along in the early 70's, that Charles Dadant put 11 of these big Quinby frames as the correct number to give a good queen her full capacity for egg laying. He said very little about it at the time, but as I explained in the early 90's, I noticed that the Dadants were having less swarming, better wintering, and were producing larger crops of honey. As early as 1894 Gleanings raised the question as to whether a queen's capacity could not be more easily secured by the average person by using **two** units of an L. hive instead of **one** large unit. From then on there was a continued discussion, both by myself and by the Dadants, until the end of the century. It is apparent that in the early 70's both Mr. Dadant and A. I. Root were leaning strongly toward big colonies. This is what A. I. Root said on page 71, Gleanings, 1875. I quote:

"Strong colonies take care of themselves in almost all emergencies. We have tried hot-beds, glass houses, stoves, and a host of appliances to enable us to nurse up weak colonies in the spring—colonies that should in the fall have been united **five into one** instead of being scattered in five hives. Have we ever yet recovered from that folly of follies of calling a **quart** of bees a colony fit to winter?"

This is good orthodox truth today but it has taken years to put it into practice.

In accordance with that conviction, we find A. I. Root gradually reaching the conclusion that a colony should be increased either (1), to 20 frames **horizontally** in one large brood nest or, (2), should be increased to two stories high using in all 20 frames to reach the capacity of a good queen. He tested out first what was then called the long-idea hive, 20 frames in one brood nest. He believed that it was the hive of the future and he called it the Standard hive. On page 98 of Gleanings for 1875, he says:

"We really cannot decide which kind of a hive is going to be preferred, the two story or double width; each has considerable advantage over the other, and this season's work strongly inclines us to the belief that bees prefer to store their surplus directly over the cluster. With the metal corners, it is easy to make a two story hive that will allow the upper story to be made a permanent fixture. Such a hive would be beautiful for extracting but quite unwieldy to carry. With a movable side, we could take out the lower combs independently of the upper, and with a long quilt to cover this side as well as the top, it could be closed without killing bees."

Again, as late as December of the same year he expresses himself. We quote from pages 145 and 146, in answer to Katie Grim. He says:

"We are very glad indeed to receive further evidence that about the same amount of honey may be expected from hives worked either spread out or piled up two stories."

For several years A. I. Root was not quite certain whether the frames should be spread out on one level or piled up one hive on top of another, giving the same number of frames.

We recall a time when he had fully decided to favor 20 frames all in one horizontal brood nest. He explained that he had no unit heavier to handle than a single comb. No heavy upper story to lift off the lower story. The "long idea hive" was used in a large way by O. O.

Poppleton in the 80's with great success. He had scattered apiaries all over Southern Florida. He had no heavy supers to lift, nothing heavier than a brood frame.

A. I. Root's Simplicity Hive

In 1870, A. I. designed what he called his Simplicity hive—Simplicity because it had only two units—one hive body without a fast bottom and a cover which could be used as a bottom. In 1876 he abandoned side storing and adopted top storing. He made his hive bodies so they could be piled one on top of the other, either as a super or as a brood nest interchangeably. Langstroth used an upper story just enough larger so that it would telescope over the lower hive, the top one supported by a rim on the lower hive. These were **not** interchangeable as were the units of the Simplicity and all modern hives today.

A. I. Root, as far as I can find, was the first to adopt the loose bottom so hive bodies could be tiered up two or more units high to accommodate any queen or any sized crop of honey.

There was one case where A. I. Root let the queen have the whole range of the two stories and with that queen, which was an extra good one, he produced a barrel of honey. Instead of piling the stories three, four, five, and six stories high, he used a honey extractor and extracted the honey as fast as they filled the top story, exchanging combs for filled combs until he had accumulated enough to fill a 330 pound barrel, all in one season.

We will have to give the credit to Charles Dadant for coming to the very definite conclusion, which he did in 1873, that a queen should have 11 Quinby frames for a brood nest. He continued this along until the question came up for discussion in 1894, as already presented. This idea brought out a new epoch of beekeeping — an epoch that changed the whole idea of honey production, until now it is universally agreed that we should work toward good queens —queens that can fill a two story Langstroth hive or a Quinby single story hive if we expect to produce maximum crops of honey.

How History Repeats Itself

The new treatment for the dreaded disease, infantile paralysis, as applied by Sister Kenny is securing almost miraculous results in spite of the fact that many conservative, honest physicians have grave doubts of its value—and they may be right. For full account of this, see Life magazine for Sept. 16. The treatment in brief consists of using hot packs and thorough massage as against the practice of putting affected parts in a cast as would be done for a broken bone. Whether this new Kenny treatment has come to stay and whether it will ultimately be adopted by the medical fraternity remains to be seen.

In the meantime we have almost an exact parallel in the case of the new treatment of American foulbrood with sulfathiazole introduced by Prof. Haseman of the University of Missouri. There are not a few doubting Thomases among honest, scientific men and among some inspectors. The marvellous fact is that the feeding of a half gram of water-soluble sulfathiazole, first dissolved in hot water and then mixed with a gallon of syrup, is producing miraculous results. Colonies rotten with the disease have been cleaned up. Prof. Haseman recommends that very rotten combs be burned immediately and then that the bees be fed medicated syrup to prevent recurrence of the disease. If it reappears when the spores under honey come in contact with larva of the right age, a further feeding is given to clean up. In spite of all this, Gleanings is beginning to believe the treatment has come to stay. While the colonies so treated have remained clean for over three years, it may take further time before all the doubting Thomases are convinced of its value.

We might go on giving further instances of how science has disagreed with practice. For example, it was scientifically proven that a machine heavier than air could not fly and that came from no less authority than The Scientific American.

Talks to Beekeepers

By M. J. Deyell

During my beekeeping experience thus far, of over 30 years, I have observed that as a rule one extreme follows the other. That is doubtless the way it is in life generally. Peace follows war, at least we hope that may be the case at present. Laughter follows weeping; years of scarcity of the essentials of life are usually followed by years of plenty; and so we might go on.

When it comes to the weather cool weather is usually followed by warm weather, and a rainy spell is followed by a dry spell. A severe winter may be followed by a mild winter, although it would seem that real severe winters come in cycles. Some are now saying that we are approaching a severe winter. We will know about that when next spring rolls around.

Beekeeping is affected to quite an extent by the weather. We may have good bees, good beekeeping equipment, good bee pasture, and apply intelligent apiary management, but if we do not have favorable weather conditions, prior to and during the flow, the maximum crop of honey is not secured. When all these requirements are present we must secure a good crop.

In times past I have noted how optimistic beekeepers are during the time a good crop is being harvested. It just seems that such conditions must continue. We can hardly imagine a poor crop or dearth of nectar. It is well to remember, if possible, during such a propitious time, that such conditions may go into reverse in the near future. Beekeepers, especially the commercial class, should be ready to meet any emergency that arises.

Conditions May Change Quickly

During the past month, in fact during the entire season, bees in this locality have been making a bare living. I looked at our scale hive this morning (this is Sept. 16) and it has gained 14 pounds in a month. Five pounds were gained during the past few days.

I visited my yard on Saturday, Sept. 14th. The goldenrod flow has actually started. Bees were beginning to whiten combs, in fact, they had begun to cap a few cells. It is remarkable how quickly bees will make a showing in hives when nectar becomes available. If the present weather keeps up for a few weeks we may yet secure some surplus fall honey.

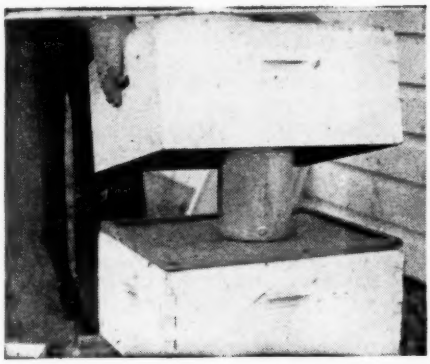
Can Bees Foretell a Honey Flow?

I am inclined to think that bees know more about the future, with respect to the honey flow, than their owners do. A number of times I have seen hives with combs in the brood chamber filled with brood just prior to a good honey flow. At other times I have seen queens curtail brood rearing a short time before a honey flow shut off or a dearth of nectar occurred. A few years ago this curtailment in brood rearing was noticed while a good honey flow was on. It hardly seemed possible that the flow would stop, but it did within a week. Did the bees have some inkling of what was going to happen? I don't know but it would seem that they must have known.

Heavy brood rearing has been noticed during the past few weeks. Also, there is an abundance of drones for this time of the year. I have also seen patches of drone brood which is quite unusual for September in this area. Just this morning I had a letter from a beekeeper in Massachusetts who remarked about the unusual amount of brood in hives at this season of the year. We all hope that this proves to be a good omen.

A Word About Clovers

In our editorial pages we urge beekeepers to do what they can along the line of interesting farmers in the growing of clovers. Of course, farmers are not going to plant clovers just to please beekeepers. A day or two ago I talked with a young Ohio farmer who lives nearby. We



Method of feeding sugar syrup using five or ten pound friction-top pail, the cover of the pail being perforated with about 20 holes made with a 3d nail. the pail of warm syrup being placed with the cover of the pail facing down over the hole in the inner cover, with the block removed. The empty super protects the feed can and the outer hive cover is placed on top.

mentioned the abundance of alsike clover that was grown in this locality about 20 years ago. During favorable seasons the bees piled up large crops of delicious honey. Alsike is one of the best honey plants when conditions are just right for nectar secretion. This farmer said that farmers in this area are not planting alsike at present but are using red clover and alfalfa. These clovers are not considered good honey plants, although during certain years bees do gather some nectar from them.

The farmer mentioned the possibility of using Ladino clover in the future, principally for permanent pasture. We have some favorable reports on Ladino, especially from beekeepers in the East. It would seem that beekeepers in different areas should try to encourage the planting of Ladino.

We know of at least one beekeeper in Southern Ohio (he passed on a few years ago) who paid for his commercial beekeeping locations with clover seed. The agreement with farmers was that they were to plant the seed for pasture or seed, in order that the bees might have a chance at the bloom. Where sweet clover is grown and the farmer plows it under for corn just about the time the clover starts to bloom, the beekeeper is not benefitted. I have seen large fields of sweet clover plowed under just as it began to bloom, and it was a sickening sight for beekeepers.

During the season of 1917 and 19-18 I was in Northern Michigan, in the raspberry region, engaged in commercial beekeeping. At that time very little sweet clover was seen in that region. I bought some clover seed and scattered it over the hills and roadsides. Eleven years later I visited that region and was agreeably surprised to see sweet clover growing quite generally. Perhaps what I saw was the result of my scattering seed.

There are of course other seeds of major and minor honey plants that can be scattered in waste places. Beekeepers will have to do more of that in order to increase bee pasture for the future. This bee pasture proposition would be a good project for beekeepers' associations to work on. Associations should have some definite objective and this one seems to be worthwhile.

Some Beginners are Not Succesful with Package Bees

We have received a number of reports from beekeepers who started colonies from packages this past spring, but who have not been sucessful. In some instances the bees dwindled in strength and finally fizzled out.

It seems probable that in some cases this may have been due to lack of food. By rights, packages should be fed sugar syrup continuously until nectar from natural sources is available in quantity. During some seasons there is practically a continuous flow from various sources during the spring months. During other seasons the weather is cold and early nectar plants do not have a chance to yield nectar normally. After all, there is nothing like a good nectar and pollen flow to boost colonies ahead in the spring.

Most beginners install packages of bees in hives containing frames with full sheets of foundation. The beekeepers who have drawn combs containing some honey and pollen are fortunate. When full sheets of foundation are used it is absolutely necessary to keep a slow feed of sugar syrup on each hive especially when nectar is not coming in rapidly.

Letting Cattle Mow Grass Around Hives

In operating out apiaries some distance from Medina we aim to have each apiary site fenced in to keep cattle and other animals, especially hogs, from coming in contact with the hives. Hogs and bees do not go well together because the hogs rub up against the hives and push them over.

Just recently we have learned of commercial beekeepers who permit cattle to pasture in the yard with bees. No fences are erected around the apiaries.

The theory is that the cattle will eat the grass around the hives during the night while the bees are inside. During the day the cattle will keep a safe distance from the hives because they have learned from experience that they will get stung if they get too close.

This year we purchased a small mowing machine propelled by a gas engine. It is a portable affair and can be hauled from one yard to another. It does very good work. The mowing is done in the evening or early morning, so that the bees are not molested. Furthermore, the operator is not so likely to come in contact with the hives in the use of this machine as he is in swinging a scythe.

During the past few years we have used a weed killer, a solution purchased in a metal drum. It is mixed with water, 40 to 1, and sprinkled in front of hives with a sprinkling can. This is quite effective in that it keeps the entrances of the hives clear of weeds and grass.

The Last Round-up for Winter

Beekeepers who winter bees out of doors, or in the cellar in the North, may have a chance during early October to give their colonies some finishing touches for winter. However, all bee work should be finished by October. Occasionally a strong queenless colony may be found. It is usually possible to purchase some laying queens, even during October. If a colony is populous in young bees it pays to introduce a laying queen. As a rule, queens are more easily introduced in the fall than they are earlier in the season.

Colonies that are under-strength should be united with colonies of normal strength. Occasionally two colonies that are under strength may be united. However, such a united colony may not winter so well as a united colony consisting of a normal and an under-strength colony.

The newspaper method of uniting colonies is recommended, especially during the early part of the season. To do this a single thickness of newspaper is placed between the two hives of bees, with a few small holes made by a lead pencil through the paper to permit air to enter the upper hive. We have found, however, that it is unnecessary to use newspaper during the latter part of the season, especially if one hive is set on top of the other very carefully, late in the evening.

An Interesting Uniting Experience

Some years ago in Western Ohio, at the beginning of the major honey flow, we had 12 colonies of bees that were not quite up to the required peak of strength for storing the maximum crop. I united twelve colonies into six colonies simply by removing the bottom board from a colony and setting it on top of the colony next to it. A queen excluder was used between the two colonies.

When these united colonies were examined in about ten days it was found in every instance that the queen in the upper hive was alive, while the queen in the lower hive had been disposed of or killed. There was no evidence of dead bees in front of the united hives as a result of fighting.

We came to the conclusion that bees in the upper hive, having to go down through the queen excluder to get out of the main entrance, discovered the strange queen and disposed of her. The bees in the lower hive, not having so much occasion to go above, did not discover the queen in the upper hive, therefore she was spared.

It rarely pays to try wintering weak colonies out of doors. Such colonies may be wintered in a bee cellar that is properly constructed. Of course, the problem in the spring is to carry these weak ones along during the cold weather until they can build up into normal colonies. Such weak colonies usually have to be strengthened with package bees.

Sugar syrup may be fed to bees that do not have a sufficient amount of honey for winter storage. See the illustration.

Just News

The New Jersey Beekeepers' Association will hold its last field meeting for this season at the apiary of Everitt C. Rulison, R. D., Washington, N. J., on Saturday, October 19, 1946, commencing at two o'clock in the afternoon. Mr. Rulison will show his modern extraction and packaging plant in preparing honey for market. Turn southwest from Washington on Route 24 and follow the arrows from a road about one mile out of Washington.—Elmer G. Carr, Secretary-Treas.

The Bronx County Beekeepers' Association will hold its next regular monthly meeting at the home of Mr. W. L. Jones, 1727 Undercliff Ave., Bronx, Sunday, Oct. 13, 1946, at 2:30 P. M. Hives will be inspected and then covered for winter protection. "This is a must" for you new beekeepers who received and hived package bees late this year. Come out and enjoy a day in a fellow beekeeper's apiary.—Sam Roberts, Sec.

The Missouri College of Agriculture at Columbia will hold an afternoon demonstration of feeding sulfathiazole on October 31 in the experimental apiary. Beekeepers within driving distance are invited.

The Georgia Beekeepers' Association will hold its 1946 annual meeting on October 24 and 25 at Jesup, Georgia, it was announced by President T. H. Fore of Gardi, Georgia. A very informative and entertaining program has been arranged. On Thursday evening, October 24, the Association will enjoy a fish fry. The annual meeting will be held in two sessions. The October 24-25 meeting in Jesup will adjourn to the January, 1947 meeting in Tampa, where it will meet with the Florida Association.—Robert Y. Dewar, Secretary, Georgia Beekeepers' Assn.

The New Rochelle Beekeepers' Association will hold its next regular monthly meeting at 2:30 P. M. on Sunday, October 20, 1946, at the Odd Fellows Hall, 20 Lockwood Ave., New Rochelle, N. Y. Following the general meeting, instruction will be given in the packing of hives for wintering of bees, after which movies will be shown. Visitors are always welcome. Refreshments will be served.—B. F. Miller, Publicity.

The Illinois State Beekeepers' Association will hold its annual convention at St. Nicholas Hotel in Springfield, Illinois, on November 8 and 9. All beekeepers welcome. Program is incomplete at present.—Hoyt Taylor, Sec.

Field Marshall Lieutenant Alexander von Matyas (retired), Budapest, Hungary, died last March after a short illness. He was author of an important work in German on beehives used throughout the world (see Gleanings, 1932, p. 735).

During the war his apiary was entirely destroyed, and his effort to reestablish himself with bees was thwarted by his bees being stolen. All remaining copies of his book were burned during the invasion.

The annual meeting of the Alabama Beekeepers' Association will be held at the Jefferson Davis Hotel in Montgomery, Alabama, Friday, October 25, at 9 A. M. An interesting program has been arranged.—F. E. Guyton, Secretary-Treas.

The Florida State Beekeepers' Association will hold its annual meeting in the auditorium of the city hall in Gainesville, Florida, at 10:30 Friday morning, November 29, 1946. The White Hotel will be headquarters. Reservations should be made well in advance of the meeting, directly with the hotel.—C. R. Allgood, Sec.

Mr. Root:

After talking to many members of the Tampa Bay Beekeepers Association, we have decided that if the State Plant Board of Florida or Mr. R. E. Foster, does not write you and state that the new Florida bee inspection law states that in the future that AFB will be treated with sulfathiazole and not burned (burning only where the owner will not treat the infected colony or colonies) before you go to press for the October issue of Gleanings that,

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Should You Attend the Great Tampa Convention?

January 12 to 17 is the time set for the joint Tampa convention where representatives from every field of the beekeeping industry will meet in joint session.

Glenn Jones and his staff will head the delegation of officers and committees representing the National Federation of Beekeepers' Associations. The American Beekeeping Council representing packers, supply manufacturers, and producers will function at Tampa. Likewise the Inspectors, Research and Extension workers will play their part in formulating plans to keep our industry growing. Yes, Mrs. Grace and Lewis Parks will bring the American Honey Institute to Tampa, where all groups will be welcomed and entertained by the Southern Conference, the Georgia State Association, and the Florida State Association.

What does this mean to you? Would you like to see increased pasture in your territory? Suppose you could determine ten days in advance if your main source of nectar would yield? If you could buy queens that would produce with your top colonies, how much increase in income would you have? How much would it be worth to have queens that would resist disease? How interesting to hear the testimony of those using the sulfa drug? Would you like to learn of methods for introducing queens and installing packages that would eliminate supersedure and dwindling? Are you interested in better equipment, more attractive containers, and new peace time markets? These and many other questions should be answered for you at the Tampa Convention. Information that will mean hundreds of dollars to you may be gained in a few minutes. Most of the successful producers will be there. You can meet your favorite queen breeder and chat to your heart's content. Won't it be interesting to meet Jack Deyell, Editor of Gleanings, Walter T. Kelley, Editor of Modern Beekeeping, and G. H. Cale and Maurice Dadant, Editors of the American Bee Journal?

All this will be very nice but there is still something better. What a wonderful opportunity to give your family a vacation. Mr. A. K. Dickinson, Director, Convention and Tourists Bureau, Tampa Chamber of Commerce, has been planning for months with Bob Foster, Lynn Dewey, Leslie Lewis, and other members of the Florida committee, for your comfort and entertainment while in Tampa. Deep sea fishing parties, scenic steamer trips, inland motor routes through citrus groves and around Florida lakes are all on the agenda. A trip of a lifetime is in store for you and your family if you head for Tampa in January. How do you feel about it?—A. D. Hiett, Chairman, Program Committee, Southern Beekeeping States Federation.

Beekeeping Library at Cornell University

Beekeeping literature which totals more than 3000 volumes and journals, collected by Professor Emeritus E. F. Phillips during his almost quarter century of service at Cornell University is being honored by a special designation approved by the University's Board of Trustees.

The collection of materials from around the world has been designated the "Everett Franklin Phillips Beekeeping Library" and will remain part of the library of the New York State College of Agriculture.

President Edmund E. Day called attention to the fact that this recognition given Professor Phillips was for the important part he played in assembling the collection and in being greatly instrumental in its adequate endowment.

At present there is being added to the library the collection of reprints of scientific papers and bulletins that Professor Phillips has collected, together with hundreds of translations of foreign papers that he has made in connection with his work. His entire collection of beekeeping books was donated some time ago. Cataloguing of this material will take some time, but each item will be added to the collection as it is

listed, and when this material is all included the library will be the most important and largest such collection in existence anywhere.

Among items of special interest are all the remaining books on beekeeping once owned by Rev. L. L. Langstroth, inventor of the modern bee hive, the entire beekeeping library of Moses Quinby, author and first commercial honey producer of the continent, and other books that were formerly personal property of well known beekeeping authorities. Priceless collections have been obtained from foreign beekeeping authorities, and files of beekeeping journals have been obtained by exchange with organizations and institutions abroad. The hand written journal and letter press book of Langstroth and a dairy kept by Quinby add personal interest. Portraits of innumerable leading beekeepers are included. An interesting feature of the library are special memorials established by individuals and organizations to perpetuate the memory of numerous important beekeepers, of course bearing their names, such as Langstroth, A. I. Root, and Charles Dadant.

A Visitor from Norway

Mr. Alfred Bergstu, of Oslo, Norway, is making a tour of the United States, visiting not Niagara Falls, Yellowstone Park, and some of the scenic wonders of the world, but the important points of interest in beekeeping. Mr. Bergstu has been closely associated with some of the authors of the best books in literature in Norway, relating to bees, and has taken many fine pictures. He is especially interested in queen rearing and for this reason is spending a good deal of time in the U. S., working with some of our prominent queen breeders.

Exceptionally well illustrated and printed is the book of 330 pages by Rolf Lunder, entitled Handbok Ibirokt (Handbook in Beekeeping). The author, besides supplying a great deal of original material, has drawn on many books and bulletins published in the United States, Germany, and elsewhere.

While Norway is a country so vast that it is more than 1200 miles from south to north, much of its surface is covered by lofty mountains, and most of the 40,000 to 45,000 colonies of bees are kept in the southern part, covering an area scarcely more than one fourth of the total.

Nosema is becoming a serious menace to Norwegian beekeeping, although, happily, the disease known as American foulbrood has as yet no great start.

In the winter the air is very dry, there is no danger of wet packing materials, and it is quite common,

Mr. Alfred Bergstu

judging by the beautiful illustrations in the book, to winter four hives in a large packing case. Dried leaves are preferred for packing material because they are light, and because they are easily obtained.

Italian bees have not been introduced to any great extent in Norway. The most common bee is the native brown bee. However, Caucasians are being brought in in-

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Asked and Answered

High Altitude for Wintering Bees

Question.—I live on a mountain in winter where the clouds are low most of the time. Would this be disadvantageous to my bees?—Duke Cowan. Alabama.

Answer.—Regarding the wintering of your bees, it would seem that a high altitude would be an advantage, in that the air would be more dry than it would be if you were at a lower altitude. If you can manage to have some wind protection for your bees that would be an advantage. At any rate you are far enough south so that you would have warm spells throughout the winter that would permit the bees to take cleansing flights.

What About DDT for Spraying?

Question.—I would like information on the effects of DDT for orchard spraying.—E. C. Green. Va.

Answer.— When we first heard of DDT we feared the effects it might have on bees. The authorities are now inclined to minimize the danger of DDT. It seems it is applied with an oil solution. Bees do not like oil. It has been said by some that the use of DDT may prove to be an advantage to our industry because this chemical will be used in time to come instead of the solutions containing arsenate of lead which is deadly to the honeybee. All in all, the DDT solution is much better than it appeared to be some months ago.

Feeding Back Unfinished Sections

Question.—Please advise me how to feed back unfinished sections that contain honey to colonies that are low in stores for winter.—W. J. Marklin, W. Va.

Answer.—One way to feed back partially filled comb honey sections is to place the super containing the sections underneath the brood chamber, directly above the hive bottom. The honey should be given to a colony late in the evening to avoid the possibility of stirring up the bees in the apiary and starting a case of robbing. Some might suggest placing the super containing comb honey sections on top of the brood chamber, over an inner cover with the center block removed. During a dearth of nectar the bees would doubtless carry the honey out of the comb honey sections, down into the brood chamber. However, when there is a light honey flow on the bees would not carry the honey down. In our opinion, the better plan is to place the super of comb honey sections underneath the brood chamber. In a relatively short time all of the honey will be carried up into the brood chamber and the sections will be empty and can be used as bait sections in comb honey supers at some future time.

Half Depth Supers as Food Chambers

Question.—I am wondering about placing half depth supers upon colonies at this time of year. I have always wintered bees in the regular 10 frame hive bodies but have been advised to add half depth supers for food chambers. Will you please advise me upon this point? I have beeway supers on now (August 7), one to a colony and find that work in them has about stopped.—F. A. Hanawalt, Ohio.

Answer.—As you are producing section comb honey, the half depth supers may be sufficient. As you doubtless know, when section comb honey is being produced, the bees will have a considerable amount of honey in the lower chamber after the surplus is removed. In the production of extracted honey there may not be so much honey in the lower chamber. Generally speaking, we advise the standard deep super for use as a food chamber, mainly because it contains more honey and, furthermore, the frames in the food chamber are then interchangeable with the frames in the lower chamber, usually called the brood chamber. If bees in your vicinity have access to fall flowers they may store some honey in the brood chambers during the coming months.

Gassing Bees in the Fall

Question.—When I gas my bees in the fall they die with their heads in the cells—that is part of them. Is there any way I can get away from this? I would like to have the combs clean for spring.—J. Jern, Mont.

Answer.—It would seem impossible to prevent bees from sticking their heads into the cells at the time they are gassed in the fall. However, if you use Cyanogas, putting about a tablespoon in the bottom of the hive inside the entrance, most of the bees will die immediately before they have a chance to reach the cells. Even though a few dead bees are found in the cells, these will be removed by bees at the time the combs are given to packages of bees next spring.

Bee Diseases and the Methods Used in Handling Them

Questions.—1. Just how resistant is AFB to the different disinfectants and what is the period of incubation? No one seems to know.
2. Does honey really and truly play a part in spreading this disease and is it a good culture medium?
3. Do the inspectors in the field always properly disinfect themselves and their tools in going from one bee yard to another and could a careless inspector help to spread it?
4. Is examination of the brood combs with the naked eye reliable enough?
5. What has been accomplished in the way of disinfection and sterilization of bee equipment other than the old time methods used? Is there nothing new or better?
6. Why are so few diseases listed of the honeybee when all living things have so many different diseases and parasites?
7. What really has been done in the way of research in all these things?
8. It seems to me that inspectors should be highly trained men to venture into the field of pathology and bacteriology. There would be less guess work then and follow along the lines used to control diseases of man and all the rest of the animal diseases.—Dr. A. E. Fabian, Wis.

Answers.—I don't know that I can satisfactorily answer all the questions pondered by Dr. A. E. Fabian. The best I can do, perhaps, is to give a personal opinion.

1. The incubation period of **Bacillus larvae** is well-known. Forty eight hours seems to be the minimum, but under certain circumstances may require 30 days or more. Various disinfectants will effectively destroy **B. larvae.** Formaldehyde as well as other chemicals will destroy the spores. Their efficacy is affected by such factors as temperature, humidity, strength of solution, etc. This also applies to heat as a disinfectant.

2. Honey is not a culture medium for **B. larvae**. The spore, however, lives indefinitely in honey. There is no question but that honey can and does play a part in spreading this disease.

3. Inspectors are all supposed to take precautions to disinfect themselves and their tools in going from one bee yard to another. It is, of course, possible for an inspector to transfer the disease from colony to colony and from apiary to apiary, but since inspectors do not transfer equipment from one hive to another or from apiary to apiary, I do not consider even a careless inspector as being an important factor in spreading the disease.

4. In 90 percent of the cases, examination of the brood comb with the naked eye is sufficient to make an accurate diagnosis. It would be impracticable for the inspectors to verify every case by microscopic examination. Even with the use of the microscope it is not possible to detect all cases of disease. Neither the inspector nor his use of the microscope is infallible.

5. At the moment thorough washing of beekeeping equipment with hot soap or lye appears efficacious.

6. Honeybees were not particularly exempted when diseases and parasites were distributed to the animal kingdom. An impartial list includes American foulbrood, European foulbrood, sacbrood, Nosema, amoeba disease, parafoulbrood, septicemia, paratyphoid, various species of fungi, **Braula coeca,** paralysis, **Acarapis woodi,** gregarines. This surely is not a bad list for such a small animal.

7. Time does not permit discussing the research done on these diseases, but there is an extensive literature on most of them.

8. In my opinion, while it might be desirable for inspectors to be highly trained in pathology and bacteriology, it would not be practicable nor would it be necessary. Many of the chief apiary inspectors do have some background in bacteriology and quite a bit of experience in practical pathology.—James I. Hambleton, Division of Bee Culture, Agricultural Research Administration, Beltsville, Md.

How to Secure Sugar for Bees

Question.—What must I do to get feeding sugar for my bees?—Fritz Oermann, Missouri.

Answer — (Reprint from Gleanings for February, 1946.)

We have recently been informed by the Office of Price Administration that effective January 1, 1946, the rationing responsibilities formerly handled by local OPA offices, including the approval of certificates for securing sugar with which to feed bees, have been transferred to District OPA offices. It will therefore be necessary for beekeepers to submit their requests for sugar for bee feeding direct to OPA District offices. There are 66 such offices in the country, including at least one in each State.

A revised application sheet, OPA Form R-356, Revised December 1945, has been prepared and can be secured upon request to your nearest OPA District office, the address of which

(Continued on page 585)

American Honey Institute News Notes

Harriett M. Grace, Director.

The **American Honey Institute** develops markets for the honey industry.

* * * * *

For the beekeeper and his product, honey, the **American Honey Institute** conducts a year round, nation-wide educational and publicity program.

The sole purpose is to increase the sales of honey.

The program of the **Institute** for publicity, merchandising, and research—all of which brings you the market for your honey—is **your** program.

Members contribute to the work of this great organization on a voluntary basis. We want every beekeeper to be a member. May we have the pleasure of writing your name in the 1946 Directory?

* * * * *

Beekeepers write us that the demand for the **American Honey Institute** Honey recipes is as great as the demand for honey.

* * * * *

One honey producer sold 2000 copies of "Old Favorite Honey Recipes" at a fair. Another sold 700 and could have sold more if he had the books.

If you desire to use "Old Favorite Honey Recipes" for your Christmas mailing, do get orders in soon.

* * * * *

A radio station has had 1500 requests for a copy of a broadcast by the Director.

* * * * *

A postman from a distant state visited the office of the **American Honey Institute.** He said that he saw so many of our books going through the mail that he decided if he ever was in Madison he would visit the office and get a copy for himself.

* * * * *

This past week it was necessary to have another 100,000 copies of the leaflet "A Honey of a Chocolate Cake", 60,000 "Use Honey in Canning and Preserving", and another printing of "Old Favorite Honey Recipes". We didn't get our full quota of books so don't delay—order today.

See that the homemaker gets honey now when she needs it and she will accept no substitute later.

* * * * *

One soon forgets the price one pays for an article, but one never forgets quality.

* * * * *

Extracts from letters:

"It is a pleasure as well as being profitable to help support the American Honey Institute."

From a Sustaining Member: "I have less than half a crop but I cannot afford to cut my contribution to your good work".

"We feel that we should give four times as much to the American Honey Institute. You folks deserve much more."

Registration of Locations

This Office has viewed with much concern the increasing movement of thousands of colonies into Cameron, Hidalgo, and Willacy counties by migratory beekeepers from many states and other portions of Texas.

Because of the danger of American foulbrood infection getting out of control where crowded conditions occur, effort is being made to provide additional protection for both the local and migratory beekeepers without resorting to drastic action.

All beekeepers who now have, or expect to have, bees in the above counties this fall or winter are requested to cooperate by registering the location of each yard with this office. Such registration should specify the landowner's name, block number, subdivision, Land Grant or legal description of the yard, if in an undivided tract. The approximate number of colonies now present, or to be placed in each yard, and date when the location is to be occupied should also be given.—F. L. Thomas, State Entomologist, Texas Apiary Inspection Service, College Station, Texas.

Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate: 10c per counted word, each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in by the 10th of the month preceding.

HONEY FOR SALE

WE BUY AND SELL all varieties of honey. Any quantity. Write us for best prices obtainable. The Hubbard Apiaries, Manufacturers of Bee Supplies, Onsted, Mich.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTICE—We can not guarantee honey buyers' financial responsibility, and advise all beekeepers to sell for cash only or on C. O. D. terms except where the buyer has thoroughly established his credit with the seller.

WE PAY CASH for extracted clover honey. Fairfield Honey Company. Millersport, Ohio.

WANTED—White and amber honey, any amount. D. F. Treap, 316 Keenan Ave., Cuyahoga Falls, Ohio.

WANTED—EXTRACTED HONEY—Clover or light amber. C. H. Denny, 483 Moody Street, Akron, Ohio.

HONEY & BEESWAX—Highest prices paid. Mail samples. Advise quantity. BRYANT & SAWYER, LOS ANGELES, CALIFORNIA.

WANTED—HONEY—Strained, chunk, or section. No amount too large nor too small. Top price. Spot cash. Lose Brothers, 206 E. Jefferson St., Louisville 2, Ky. Call JA 1015 collect.

CASH FOR YOUR HONEY—Extracted or comb. Regular trade, send sample. 60-lb. cans furnished if desired. W. R. Moomaw, Stone Creek, Ohio.

HONEY WANTED—All grades. Carloads or less. Also beeswax. Pay top prices. H. & S. Honey & Wax Co., Inc. 265-267 Greenwich Street, New York 7, N. Y.

HONEY WANTED—All grades and varieties. Highest cash prices paid. Mail samples. State quantity. HAMILTON & COMPANY, 1360 Produce St., Los Angeles, Calif.

WANTED—Clover extracted and comb honey, any quantity. C. Jankowski, Prairie View, Illinois.

WANTED—Light extracted honey, clover preferred, in 60's. J. Jones, 115 West 82nd Street, New York 24, N. Y.

CASH for extracted honey in barrels, cans, pails. Advise what you have. Keims, Box 76, Mt. Hope, Ohio.

HIGHEST cash return made the day we receive your beeswax. Write for shipping tags and quotations. Walter T. Kelley Co., Paducah, Kentucky.

WANTED—Honey, extracted or comb. Mail sample, quote price. SEIFERT & MANN, 106 South Water Market, Chicago, since 1889.

HONEY WANTED—CARLOADS ONLY. WHITNEY HONEY COMPANY, PUYALLUP, WASHINGTON.

WANTED — White and amber honey. Joseph Fekel, Route 4, Vineland, N. J.

HONEY WANTED—All grades and varieties. Highest cash prices paid for a can or carload. Mail samples. State quantity. CLOVER BLOOM HONEY COMPANY, Box 276, Minco, Oklahoma.

HONEY WANTED—All grades and varieties, state quantities, how packed. Can use copper and second grade honeys also. Natural Foods Institute, 624 Prospect Avenue, Cleveland, Ohio.

FOR SALE

HONEY LABELS — Improved designs, embodying color, balance, simplicity, and distinction. Please send for free samples and prices. C. W. AEPPLER COMPANY, OCONOMOWOC, WIS.

QUEENBEE PAINTING OUTFITS $1.00; colony records, 10-15c postpaid. Southwick Apiaries, Waban, Mass.

SAVE MONEY by letting us work your wax into wired regular comb foundation. Large catalog describes everything. You pay only wholesale factory prices as we have no agents. Walter T. Kelley Co., Paducah, Ky.

WRITE FOR CATALOG—Quality Bee Supplies at factory prices. Prompt shipment. Satisfaction guaranteed. The Hubbard Apiaries. Manufacturers of Beekeepers' Supplies. Onsted, Mich.

WRITE FOR LOW CASH price glass jars and 5 lb. tin pails. Complete stock. Prompt shipment. Roscoe F. Wixson, Dundee, N. Y.

We carry a complete stock of bee supplies and honey containers. Write for our price list. Prairie View Honey Company, 12303 12th Street, Detroit 6, Mich.

FOR SALE—350 full 4 story ten frame good factory-made hives with metal covers, inner covers, good wired combs with strong colonies of fine healthy bees, abundant honey for winter, $30.00 each. Inspection certificate furnished. Bees can be left on present locations. One like new 45-frame Simplicity extractor with one H. P. electric motor, $250.00. Prefer selling as a unit. Can also sell 12 room house. 4 lots, with or without bees. John Burghardt, Jewell, Iowa.

HONEY WANTED

All Grades - Any Quantity

Bryant & Sawyer

Los Angeles Honey Co.

2425 Hunter Street

Los Angeles 21, California

WANTED: Extracted Honey All Kinds

One can or a carload—what have you? Mail your offerings and samples to us. Prompt action. Cash on delivery.

JEWETT & SHERMAN COMPANY

Lisbon Rd. & Evins, Cleveland 4, O.

1204 W. 12th St., Kansas City 7, Mo.

HONEY WANTED

FOR EXPORT AND DOMESTIC

All Grades - Any Quantity

Foreign Commodities Corp.

100 Hudson Street

New York 13, N. Y.

Soy Flour and Pollen Traps

We are distributors of Staley's Lo-Fat, High Protein expeller processed soy flour for beekeepers. We offer the finest quality in our soy flour and pollen traps.

KILLION & SONS APIARIES

Paris, Illinois

Three Banded Italian

QUEENS

Of Highest Quality

* * * * *

1 to 24, $1.00 each;
25 up 80c each.

Pure mating and live delivery guaranteed.

* * * * *

E. R. RALEY

Box 1610, Daytona Beach, Fla.

When writing to Advertisers mention Gleanings

FOR SALE — 450 Standard 10 frame hives, mostly purchased within the past 3 years, with supers to hold full crop; all equipment filled with good combs and honey for next spring's package bees. Complete extracting and processing plant, with 8 H.P. steam boiler with automatic oil burner. No AFB; inspection certificate furnished time of sale. Ideal location with large acreage of sweet clover in Red River Valley in North Dakota. Can be operated at present location or moved. Will sell all as one unit only. Reason for selling is owner's poor health. Write "Gleanings in Bee Culture," Box 910, Medina, Ohio.

FOR SALE—300 colonies of bees. Inspection certificate furnished. Nelson Wheeler, West Bloomfield, New York.

A few hundred friction top tin cans, enameled inside. 4½" deep, 3⅜" diameter for packing honey. In cartons of 100. Albert G Hann, Glen Gardner. N. J.

ONE FOUR FRAME hand reversible extractor. Standard frame size. One 90-gal. storage tank. Both good as new. Eight frame equipment for 50 colonies. W. E. Van Horn, Sinclairville, N. Y.

HONEY MELTER—Two "Weeks Tubes" with full directions. $2.00 postpaid. Cans of sugared honey become fine, light, well flavored product. Never over heated BEEKEEPER'S HOIST. $25.00—or build your own. Specifications free for stamp. Turner Mfg. Co., Corning. Iowa.

FOR SALE—New ¾" honey pump with power drive and all fittings, $30.00. T. F. Willms, Chehalis Wash.

FOR SALE—26 colonies bees State inspected. Clyde Myers. Dillsboro, Ind.

50 colonies bees in double walled hives, $10.00 each. Inspection certificate furnished. Otto Hurd, Phalanx Sta., Ohio.

CLIP QUEENS without handling. SIMPLEX TRAP removes queen from hive, holds her in position for clipping elsewhere, without annoyance of flying stingers. $1.75 postpaid—free circular. Instant 7, 8, and 9 frame spacers—fast, accurate, indispensible. $1.50 postpaid. Specify size. George Leys, 48 Drake Ave., New Rochelle, N. Y.

FOR SALE—36 colonies of bees, extractor and equipment. No disease and will be inspected at time of sale. Other urgent business. Honey crop included. P. D. Barker, 2102 Elim Ave., Zion, Ills.

FOR SALE—About 200 colonies in M.D. hives with supers. $14.00 each with winter stores and two supers. Inspection certificate furnished. Howard M. Myers, Ransomville, New York.

HONEY JARS. pre-war, shopworn. also Economy line, 8 oz., 16 oz., 2 lb., and 4 lb. jars for immediate shipment. Lose Bros., 206 E. Jefferson St, Louisville. Ky.

45 CASES used honey tins, 40c per case. Dr. G. T. Hayman, Doylestown, Pa.

FOR SALE—Root two-frame reversible extractor in good condition, $25.00. F.O.B. Chicago. Chas. C. Crockatt. 5851 Newark Ave., Chicago, 31. Illinois.

BEES AND QUEENS FOR SALE

Gleanings cannot guarantee that all bees advertised for sale in its classified columns are free from disease. We use all possible care in accepting advertisements, but we cannot be held responsible in case disease appears among bees sold. We suggest that

prospective buyers ask for certificate of inspection as a matter of precaution.

ITALIAN QUEENS. satisfaction assured. $1.00 each. Write for quantity prices. Lange Apiaries. Llano, Texas.

IMPROVED ITALIAN QUEENS—$1.00. From a strain that produced over 600 lbs. of honey per colony. Henry Loehr, Jr., Caldwell, Texas.

THREE BANDED Italian queens, 1 to 25, $1.10 each; 25 up, $1.00. Health certificate with every order. Alamance Bee Company, Graham, North Carolina.

GOOD QUEENS FOR SUMMER AND FALL REQUEENING—Gentle three banded Italian stock that has made outstanding records for colony production in areas where large crops are made. We now have the experienced help necessary to give you good queens and prompt service. Select young laying queens, $1.10 each; 25 to 99, $1.00 each; 100 or more, 90c each. Postpaid. Also package bees from now until October. They make fine summer increase. H. C. Short, Fitzpatrick, Ala.

SOLD OUT on queens this season. Booking orders for Caucasian package bees. 1947 delivery. Lewis & Tillery Bee Co., Greenville, Ala.

MILLER AND EVANS—Booking package bees for spring delivery. Write. Caucasians. Miller and Evans, Three Rivers, Texas.

THE NORMA ROY APIARIES—Italian bees for spring delivery; 2 lb. with queen, $4.25; 3 lb. with queen, $5.00. Queenless packages, deduct 80c per package. Book your order now and reserve shipping date. No deposit required. Norma E. Roy & Son, Hessmer, La.

BREWER'S LINE - BRED CAUCASIAN QUEENS—Book your order for April delivery now. Write for prices and terms. No package bees. Brewer Brothers Apiaries. 3217-R Hawthorne Road, Tampa 6, Florida.

HELP WANTED

WANTED — Experienced queen yard man. Year around employment in yards and shop. We can furnish a good modern home to live in. Give full information, age, experience, and salary expected in first letter. H. C. Short, Fitzpatrick, Ala.

WANTED — Experienced package bee man to take over large Southern package business with all equipment and steady demand. Must be able to organize and manage a crew, and to finance a share of operating capital on share plan. Box 2646, Gleanings, Medina,Ohio.

WANTED TO BUY

WANTED TO BUY—Two frame reversible or churn type extractor. Any brand. Need not be in too good condition. State price crated and shipped. Will pay freight. John F. Love, Sidney, Illinois.

SUPPLIES

WARNING N. W. BEEKEEPERS: Glass and tin honey containers continue to be very difficult to obtain. Don't get caught short again this fall. Order at least part of your container requirements NOW. You'll be glad you did. Send for price list. HONEY SALES COMPANY, 1806-08 No. Washington Ave., Minneapolis 11, Minn.

Honey Containers

1 lb. jars, carton of 24	$0.88
2 lb. jars, carton of 12	0.51
5 lb. jars, carton of 6	0.45
24 cartons of 5 lb. jars	9.95

Clifford H. Denny

483 Moody St., Akron 5, Ohio

Complete Commercial Outfit For Sale

We are offering our entire outfit of 500 colonies and extracting equipment. Wish to sell all or part for cash. Inspection certificate furnished.

L. S. Griggs & Son
711 Avon St., Flint 3, Mich.

DEPENDABLE 3-BANDED QUEEN BEES

Place your order NOW for Summer and Fall Delivery

June 1st, through October.

1 to 11, $1.00 each
12 to 99, .90 each
100 or more, .80 each

TERMS; Cash with order
Live delivery and Satisfaction Guaranteed,
Health Certificate with each shipment;

John C. Hogg, Tifton, Ga.

Leather Italian Bees and Queens

guaranteed to be the most productive and gentle stock available.

We will replace any queen that fails to live up to our guarantee, or arrives dead or in poor condition.

We will book your order subject to your approval when prices are quoted. Your deposit of 10% not required until then.

Queens for balance of year, $1.00 each.

The Rich Honey Farms
Jeanerette, La.

JENSEN'S

"Magnolia State" Strain Italian Bees and Queens

Another successful season draws to a close, and beekeeping continues to move forward in both scope and importance. In spite of shortages of equipment and other obstacles, plus unfavorable conditions in many honey producing areas, much optimism prevails in the industry.

Bees are receiving a lot of favorable publicity these days and much of it absolutely free. But beekeepers need to get behind our National Federation of State Beekeepers' Associations with sufficient funds to keep it going, and to expand the good work it is doing in interesting agronomists and other groups in the importance of bees in pollination. More and better bee pasture will result from our cooperation. Let's give the Federation our wholehearted support.

Last call for queens to save that old colony or colonies found queenless at the last moment—$1.00 each while they last.

Jensen's Apiaries, Macon. Miss.

BEES WANTED

WILL BUY 300 to 1000 colonies and supers with or without crop, standard equipment. Write stating conditions, locations, price, and reasons. Gleanings in Bee Culture Box 846, Medina, Ohio.

WANTED—Small bee outfit in Wisconsin or Minnesota with locations. Box 900, Gleanings, Medina, Ohio.

WANTED—Bees and equipment. Write full description. Seth Fox, Pewaukee, Wis.

SEEDS

ANISE HYSSOP SEED, Packet. 25c; ½ ounce, $1.10. James Beecken, Elgin, Ill.

BLUE VINE now in bloom in Southern Indiana. (August 5th) Send for complete story, facts, and information about this wonderful honey plant. Tritox Chemical Company, Washington, Indiana.

TRIFOLIUM AMBIGUUM—a new clover that increases rapidly by deep rhizomous roots. Long lived, good honey plant. Seed not yet available. Root divisions, minimum order, 25 for $2.00; 100, $5.00; 250, $10.00. Postpaid.Pellett Gardens, Atlantic, Iowa.

MISCELLANEOUS

EARTHWORM CULTURE — Send postcard for valuable FREE bulletin with review on "Intensive Propagation and Use of Earthworms in Soil Building". Thos. J. Barrett, Earthmaster Farms, Box 488-G, Roscoe, Calif.

23 Volumes Gleanings, 9 Beekeepers' Item, $15. Trade for honey, wax, frames. Carrington Callaway, Norwood, Virginia.

HONEY

Wanted

A Can or a Carload

Top Prices Paid

Will furnish 60-lb. cans if desired

C. W. AEPPLER COMPANY

Oconomowoc, Wisconsin

POSITION WANTED

WANTED—Full-time job by veteran, married, one year's experience migratory beekeeping,shop work, familiar with AFB and EFB. Desires work with small outfit. Box 1001, Gleanings, Medina, Ohio.

TRAPPERS

TRAPPERS—Now that your bees are snugly tucked away for the winter, why not trap some of those high priced mink pelts? My method requires no lures or baits, usually gets them the first night they run. Easy, practical method, $2.00. Charles Kuderka, P. O. Box 267, Rock Island, Ill.

ANGORA GOATS

INTERESTED in Angora Goats? Read the Sheep and Goat Raiser, Hotel Cactus, San Angelo, Texas, the only ranch magazine published serving the Angora Goat industry. Subscription — $1.50, Sample copy—15 cents.

INSECTICIDES

WAX MOTH CONTROL—Protect your extracting combs from moth damage with paradiclorobenzine. Non-poisonous, non-inflammable, harmless to persons using or handling. Recommended by government and experiment stations. Death to wax moth and clothes moth. One ounce treats ten brood combs. Two pounds parcel post, $1.00; Five pounds, $2.00. Tritox Chemical Company, Washington, Indiana.

RABBITS

ORIGINAL GIANT CHINCHILLA RABBITS. Prolific. Profitable. Most valuable fur. Big demand. Delicious meat. Markets furnished. Willow Brook Farm, R129, Sellersville, Pa.

MAGAZINES

THE INDIAN BEE JOURNAL—The only bee journal in India. Sample copy free. Yearly, 7s' 6d. ($1.50) International Money Order. Apply Editor, Indian Bee Journal, Ramgarh, Dist., Nain Tal, U. P. India.

WESTERN CANADA BEEKEEPER—official organ of the Manitoba Beekeepers' Association. One year, $1.00; in combination with one year's subscription to Gleanings in Bee Culture, $2.25. Wallingford Building, Winnipeg, Canada.

Read the South African Bee Journal to be conversant with conditions from far afield. Subscription 5/ per year. For further particulars, write to the Hon. Treasurer, E. E. A. Leach, Box 57, East Rand P. O., Transvaal, South Africa.

DO YOU FIND it difficult to secure information about sheep and sheep ranching methods? The SHEEP AND GOAT RAISER reachts more sheepman with more information on range sheep than any other magazine published. Subscription, $1.50. Hotel Cactus, San Angelo, Texas.

THE BEE WORLD—The leading journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy post free. 12 cents stamps. Membership in the Club including a subscription to the paper, 10/6. The Apis Club, L. Illingsworth, The Way's End, Foxton, Royston, Herts, England.

WE ASK YOU— Are You Looking Ahead?

It is not too early to look into the future of a few months and begin to lay plans for your

PACKAGE BEE REQUIREMENTS

By past averages you know about how much loss you will probably have, also your mind is practically settled regarding the amount of increase necessary to continue your production program.

With the above in mind you should arrange for your supply of PACKAGE BEES as soon as possible. Many are placing their orders now and many others are requesting information regarding delivery and other matters concerning future orders.

Our advice is to place your order subject to your approval of prices, which we are not in position to quote at this time. By doing this you are obligated in no way, but have the satisfaction of knowing your date and number of packages that are reserved.

We offer you Dark Italian PACKAGE BEES that Conserve Stores, Winter Well, Build Up Rapidly, Handle Easily, and Produce Greater Surplus for your increased profit.

"They Produce"

Rossman & Long

Box 133 Moultrie, Ga.

CARNIOLANS CAUCASIANS

Both races very gentle, prolific, good winterers, wonderful workers. We can still supply a few queens of these excellent races this month. Prices: **Untested queens, $1.00 each. By Air Mail 6c extra per queen.**

ALBERT G. HANN
Glen Gardner, New Jersey

Now booking orders for 1947

Leather Colored Italian Queens
25% books the order
Write for prices

Lynn Williams
Oroville, Calif. Rt. 3

ITALIAN BEES AND QUEENS

We regret that we do not have any more of our fine Italian Queens, but we are booking orders for 1947.

B. J. Bordelon Apiaries
Moreauville, La.

Modern Beekeeping

Starting with the August issue we have a new name for our magazine, which was formerly called **THE BEEKEEPERS ITEM.** We like the new name and believe that you will. The name is distinctive and it implies mechanism, the sulfa drug, and everything that is new and worthwhile that we are bringing to your attention.

We are making our magazine into the picture magazine of the industry. We are taking our readers with us on trips to bee meetings and are showing them in pictures what we saw. Every month we have worthwhile articles on various phases of beekeeping—articles that you, as a beekeeper, cannot afford to miss.

Pictured at the left is a bee pin that we are offering in connection with our magazine. This is a photograph of the pin and is approximately the same size. These are sturdy gold plated pins, fitted with a special spring tension arrangement, but no safety catch.

MODERN BEEKEEPING — 1 year with the bee pin, $1.25. Sample copy free.

Modern Beekeeping Paducah, Ky.
Walter T. Kelley, Editor

LEATHER COLORED ITALIAN QUEENS
MIDDLE TENNESSEE APIARIES
1 to 25, $1.25; 26 and up, $1.10—From Imported Strains.
¼ books orders. Balance before shipping. All queens clipped and by air mail at no extra cost. (All Queens after June 15, $1.00)
J. B. TATE & SON
1209 No. 4th St., Nashville 7, Tenn. Tel. No. 34509M

Hardy — High Producing — Gentle

St. Romain's "Honey Girl" Italians

	1 to 4	5 to 11	12 to 49	50 to 99	100 up
Queens	$1.00 ea.	90c ea.	85c ea.	75c ea.	70c ea.

* * * * *

Prompt service. Live delivery. Certificate of Inspection.

St. Romain's "Honey Girl" Apiaries, Moreauville, La.

PACKAGE BEES AND QUEENS

Leather Colored Italians
Bred for Production

Prices of Package Bees and Queens

Lots of	2 lb.	3 lb.	Ex. Queen
1 to 24	$4.00	$5.00	$1.25
25 to 99	3.85	4.80	1.10
100 or more	3.75	4.70	1.10

Terms: 25% deposit to book order, balance ten days before shipping date. We replace any bees that die in transit if it is our fault. If it is the carriers' fault, file claim with them. We are now shipping. Old customers will be given preference.

The Island Apiary

Collier City, Fla.

Gentle Northern Queens

From tested 3-banded Italian breeding stock

All queens are reared under natural conditions in large over-wintered queen-right colonies. Nature's way of producing large fully developed queens. These hardy northern strains of Italians are meeting with approval in many parts of the world.

Prices June 1st to Oct. 15th:

Young untested

1-24	$1.10
25 up	1.00

Young tested

Any quantity	$2.00

Queens shipped Airmail Postpaid
Prompt service, satisfaction.

Barger Apiaries

Carey, Ohio

BEES & QUEENS FOR 1947

2000 Packages for April & May

10,000 extra queens

Book now and be sure of your spring dates.

BAYOU BEE CO., Montegut, La.

Rt. 1 Box 49

BEHAVIOR OF THE BEE CLUSTER

(Continued from page 537)

for swarming; and in a few hours they would tear down cells already built. Then the temperature could be raised and with the swarming fever over, they would go on with their honey getting.

If a time of dearth came I would merely simulate winter conditions in the house with an inside temperature of 45° and a cluster temperature of 58, causing the bees to cluster loosely and consume little honey, not flying at all until such time as there was, again, nectar for them to gather.

Are such things Utopian? No, they are already with us but only a few people are using these controls. Are we content to call our bees cold-blooded when they can, although not profitably, produce heat to keep themselves warm at 45° below zero? I prefer to think of the bee cluster as a warm-blooded animal, with some kind of an inner mechanism which we can and should control now that we have learned the secret of splitting the atom.

How comparatively little we have done with our bees in all these years we have been working with them! Verily, there are atomic bombs in our business, even though we have not suspected it! With absolute control of colony activity, we can control pollination of fruits, vegetables, and legumes, and if we move quickly enough we can provide sufficient bees for adequate pollination of all the countless plants that will be grown from the tons of seed we are sending to Europe. Without enough bees, the plants will fail to produce and children will continue to starve all over the world. What are we going to do about it? I wish someone would tell me!

Roscoe, Calif.

[The article by Mr. Sechrist will bear rereading. The equipment necessary to conserve or control bee energy (which conservation should result in larger honey crops and more bees for pollination) will naturally cost considerable. If, however, the results attained more than justify the cost or expense involved, such equipment should be considered. What we are or should be interested in, is results.—Editor.]

WHAT PRICE PACKAGE BEES FOR 1947?

We held the line—made no increase in prices for 1945 and 1946. It now appears that we cannot do it again—BUT WE WILL STAY IN LINE.

IN THE MEANTIME

Place your order early with $1.00 per package deposit to secure desired shipping dates. We are booking orders rapidly for preferred dates. Invoices will be rendered as soon as prices are established. Demand this year, more than ever, will exceed supply, so don't delay. We can't accept orders after we reach normal capacity.

THE PUETT COMPANY
Hahira, Georgia

Italians

Bees and Queens for 1947

Dark three-banded strain that are good producers. Prices will be in line with others. Write for prices and other details.

A. M. Peach
Baldwyn, Mississippi

MAIN PROBLEM IN COLONY MANAGEMENT

(Continued from page 535)

so clear. He must take every precaution known to him, if he wishes to give service, to include only young bees in the shipping cage. He could encourage his customers to buy "booster" packages for arrival about two weeks after the original packages, even if it is only one to every five of six packages. But apart from these two things, there is little he can do. It is not possible for him so to ship his bees that young brood will emerge during the first three weeks or so.

The secret of better success with packages would seem to be more in the hands of the buyer, and it would seem that he must use queenless packages as a supplement, or take frames of brood from wintered-over colonies, to boost packages at the proper time.

Moose Range, Sask.

[We have found from many year's experience with package bees that it actually does pay to give packages one or more combs of sealed brood during the third week after packages were installed. In our opinion it is preferable to give one comb at a time, especially if the weather is cool, because the addition of more than one comb may be more than the package colony can properly take care of. It is preferable to select a comb of sealed brood from which young bees are just beginning to emerge and this comb should be placed in the center of the brood chamber.—Ed.]

NOTICE

Only a limited number of queens available during October at: 1-24, $1.10; 25 99, $1.00; 100 and over, 90c each. Improved methods and personally selected stock in the North will greatly enhance the quality of our strain next year.

BESSONET BEE COMPANY, Donaldsonville, La.

1947 PACKAGE BEES AND QUEENS 1947

ITALIANS

We are booking orders for Spring 1947 delivery. We will book your order subject to prices quoted later. No deposit now—only after prices are quoted—and then we require a 10% deposit.

We have a full line of material ready. We strongly advise ordering early for we expect a lively demand for bees and queens for honey is selling at a good price with sugar rationing still in prospect for 1947.

We guarantee live delivery, full weight packages, young mated queens, health certificate, satisfaction, prompt reply.

Rt. 2, Box 9 SUNKIST BEE COMPANY Houma, La.

Above photo shows a portion of one of our queen yards of 10,000 nuclei.

1947 Italian Bees and Young Queens 1947

By adding 2000 colonies to our outfits in Louisiana, we should be able to take care of your additional needs this forthcoming season.

On orders booked before Jan. 1, 1947:

3 lbs. with young laying Italian Queen	**$5.00**
2 lbs. with young laying Italian Queen	**4.00**
Extra Queens, any number	**1.25**

We solicit large queen orders.

Overbey Apiaries, Bunkie, Louisiana

USE OF SULFA DRUG IN CONTROLLING AFB

(Continued from page 543)

the American beekeepers are using the water soluble sodium sulfathiazole, since it mixes more easily with the sugar syrup.

We are continuing our studies with sodium sulfathiazole this year at Columbia, and are also including both penicillin and streptomycin in these studies. While we are not far enough along to decide anything definite about the possible effectiveness of the two antibiotics, we have found that colonies fed them are rearing solid combs of brood in old, badly infected combs given to them for clearing up.

These sulfa drug experiments have opened up the whole field of AFB control by means of drugs and antibiotics. A number of State Agricultural Experiment Station men, the Federal Bee Research men, and a number of commercial research bacteriologists and chemists are now cooperating in these studies. What the possible far-reaching results from these studies may be, time alone will tell.

THE SPRAYING MENACE

(Continued from page 542)

not chop down and cut up an elm tree if you give it to them; it's the meanest of woods to work up and is almost impossible to split.

If the bugs are killing the elms, as they have done in other parts of our state in spite of the spraying that kills everything else, what do we get for the work and expense of spraying and the damage it does in many other ways?

Does it not look as if, in spite of anything we can do, the undertaker will eventually get the elms? And are we not killing the bees and birds that "lay the golden eggs" that protect the food we eat?

I have already lost five colonies that became so depleted that I had to unite them with others in order to save anything, and other colonies are so weakened that I have not had one swarm all summer. It looks like less than half a honey crop this year for me.

Canaan, Conn.

TANQUARY'S

ITALIAN BEES AND QUEENS

With over 35 years of honey production in the Northwest, we know what kind of packages and queens the buyer wants. Good bees; Good weight packages; Good queens and shipped on time. It's certainly our aim to do this.

We advise you to place your orders now for 1947 delivery. We are booking up fast. Will book you now, subject to prevailing prices.

We guarantee safe arrival on bees and queens. Queens clipped at no extra cost.

Price List

Queens, any number, 85c postpaid, balance of season.

Quantity	1 to 24	25 to 49	50 to 99	100 up
2 lb. pkg. with queen	$4.15	$4.05	$4.00	$3.70
3 lb. pkg. with queen	5.15	5.05	5.00	4.70
4 lb. pkg. with queen	6.15	6.05	6.00	5.70
5 lb. pkg. with queen	7.00	6.90	6.85	6.65
Tested Queens	2.10	2.05	2.00	1.75
Untested queens	1.35	1.30	1.25	1.15

Queenless Packages, deduct $1.10 per package.
Package Bees F.O.B. — Queens Postpaid.

Tanquary Honey Farms, Incorporated

Lena, South Carolina

JUST NEWS

(Continued from page 569)

Being as the Tampa Bay Beekeepers' Association was the one who waged this important fight and without which Florida would not be enjoying this treatment, and,

As the Tampa Bay Beekeepers' Association has always believed in unsuppressed knowledge at all times, that,

In the interest of good beekeeping, that Gleanings be asked to print in the October issue the fact that the Florida Plant Board has changed their law to allow the treatment of AFB with sulfathiazole.—F. S. Houston, Asst. Sec. of The Tampa Bay Beekeepers' Assn. (See p. 556.—Ed.)

"Pollen—Wonder Dust of Nature" is the title of a comprehensive as well as accurate statement in the Readers Digest for October covering the ways and means of its distribution by which the food of a starving world is enormously increased. Concerning honeybees, it says, "The best all around pollinator is the common honeybee which is abroad earlier in the spring than any other flower loving insect . . . . . a bee hive is almost a necessity in apple and orange orchards."

Such an informative article in a publication with millions of readers will help to spread the gospel of the honeybee.

The South Plains Beekeepers' Association of Texas was organized September 7 at College Station, with B. J. Rucker, President, and C. B. Bentley, Secretary. Two objectives will be the promotion of better beekeeping and control of bee diseases.

It begins to look now as if we can indulge the hope if not the reality that the day of burning good property has passed or will soon in treating AFB that hitherto has been our worst enemy. (See page 556.)

Before us is the First Edition of **A Manual of Beekeeping for English Speaking Beekeepers,** by E. B. Wedmore, published by Edward Arnold & Co., London. One would think that any book on bees written by an Englishman would cover current

(Continued on next page)

JUST NEWS

(Continued from previous page)

practices mainly in Great Britain. This book is unusual in that it has a very wide scope and is brought clear up to date. The title is correct when it says. "For English Speaking Beekeepers".

Quoting from the Preface to the First Edition, we find this: "The majority of advanced books on beekeeping are written for the conditions prevailing in a particular country. Now, the advice given and methods described not only need modification for use in other countries, but even for application in the writer's own country, in parts where the conditions he deals with do not happen to prevail. This work is written for the English speaking beekeeper, wherever found, and is intended to give him not only the most reliable and latest information in every branch of practical beekeeping, but such guidance as will enable him to select the best methods for his particular circumstances, be he north or south of the Equator; in warm, cold, wild, or cultivated regions; whether he be keeping bees for a living or as a hobby; at home or in out apiaries; attending to them every day in the week or only week ends".

We have gone over this book, page after page and we are not a little pleased to note how much the views expressed are in line with those in our own work, the **ABC & XYZ of Bee Culture.** The work includes on ly 386 pages but presents a brief of practically every known current practice among good beekeepers, no matter where they are located.

Our American readers will find it well worth reading.

ASKED AND ANSWERED

(Continued from page 573)

can be furnished by local OPA offices, many of which are being continued for purposes other than rationing. When applying for sugar for this purpose, allow for more delay than was experienced when local OPA offices were authorized to grant these requests.

The regulations approving the authorization of sugar for feeding bees have been clarified somewhat and are included in the latest OPA revision, headed "3b Rev. RO3," and Supplement 1 of this order, both issued December 29, 1945, and effective January 1, 1946. The substance of the order has not been changed: "A beekeeper who needs sugar for feeding his bees may get sugar for that purpose in an amount not to exceed 10 pounds per calendar year for each colony of bees. (Each newly-installed package of bees and each queen mating nucleus shall be considered a full colony.)" In addition, "if additional sugar is necessary to prevent the loss of his bees," a beekeeper can obtain a certificate permitting him to obtain not to exceed 15 more pounds of sugar per colony, upon certification by the local County AAA Committee representative.

Please see that beekeepers in your area are advised of these changes in OPA regulations and procedure.

Harold J. Clay,
Chief Honey Section,
Special Commodities Branch,
U. S. Dept. of Agriculture,
Washington, D. C.

GOLDEN WEST!

Try our western-bred queens and bees, for they are the best. The war is over now and the Clifton Brothers are back together again to give more efficient service and better bees and queens than ever before.

CLIFTON Apiaries

Oroville, Box 684, Calif

You'll Like
The Beekeepers' Magazine

It's Spicy — It's Independent

Send for your free copy and special introductory subscription offer today.

ELMER CARROLL — Publisher

Rt. 5 Box 181 Lansing, Mich.

CARNIOLANS

No more queens for balance of season.

Ephardt Honey Farms, Plaucheville, La.

Try

Girardeau Apiaries
(Successors to Morley Pettit)

For
Quality Italian
Package Bees and Queens
1947
Spring Delivery

Girardeau Apiaries, Tifton, Ga.
J. H. Girardeau, Jr., Mgr.

Australian Beekeeping News
The Leading Bee Journal of the
Southern Hemisphere is the

"AUSTRALASIAN BEEKEEPER"

Subscription 5 shillings per year. Start any time. Inquire for International Money Order for 5 shillings (Australian) at your Post Office.
Write now to the Editor, P. O. Box 20, West Maitland, New South Wales, Australia

Bee Gloves

Immediate Delivery!

Made from top grain cowhide. Positive protection. Guaranteed Satisfaction or your money refunded.
Price per pair
$3.75
Sizes: Small, Medium and Large.

APIARY
SUPPLY HOUSES
WRITE FOR
QUANTITY
DISCOUNTS

KING * MOORE COMPANY
7034 No. Figueroa St., Los Angeles, Calif.

FALL REQUEENING

After the main honey flow is over is one of the Best Times of the year to Requeen Bees. It insures a vigorous young queen that will lay late in the fall and early in the spring, making wintering more successful, also having a good strong colony next spring when you need it. We have lots of good queens ready to mail out at once.

ITALIANS OR CAUCASIANS

- Prices -

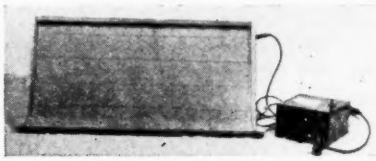
Lots of: 1-24	$1.10
Lots of: 25-99	1.00
Lots of: 100-up	.90

No charge for Air Mail or Clipping

Your money refunded or another queen for any that is not satisfactory

The Stover Apiaries

Mayhew, Miss.



SUPER WIRE IMBEDDER

BEST workable wire imbedder on the market. FINGER-TIP heat control. Safe and fool-proof to use. It may be used with either 3-ply or crimp-wired foundation. $11.50. Wt. 3½ lbs.

R. P. Easton, 1227 Cornell Ave., Binghamton, N. Y.

ITALIANS! QUEENS! CAUCASIANS!

Daughters of Queens bred for Resistance — Bred to Italian Drones
All three races bred in separate yards
2-lb. package bees with queen, $4.00; 3-lb. package bees with queen, $5.00.
Extra Queens, $1.25 each. Booking orders for 1947
OVER 25 YEARS A SHIPPER IN U. S. A. AND CANADA
Sulfathiazole used in feed at no extra cost to you
MASTER MIX POLLEN made from Soybean flour, Cottonseed meal, Brewer's yeast, Skim milk, Natural pollen, Invert sugar, and Sulfathiazole. 10-pound pail, $2.50; six pails, $13.50; Send for FREE CIRCULARS.

BLUE BONNET APIARIES, Rt. 2, Box 23, WESLACO, TEXAS

YORK'S PACKAGE BEES AND QUEENS

QUALITY BRED ITALIANS

During the remainder of the season we will continue to supply a limited quantity of packages for late increase or booster bees for backward colonies that may need help. We have ample good queens to supply your needs in large or small lots for prompt shipments. Foundation stock proven producers, buy wisely.

PACKAGE BEES WITH QUEENS

Quantity	1 to 2	3 to 27	30 to 96	99 up
2-lb. pkgs.	$4.25 each	$4.10 each	$3.95 each	$3.75 each
3-lb. pkgs.	5.25 each	5.10 each	4.95 each	4.75 each
Queens	1.30 each	1.25 each	1.25 each	1.25 each
Tested Queens	2.60 each	2.50 each	2.50 each	2.50 each

Queenless packages, deduct $1.10 per package.

We are receiving many inquiries and orders for 1947. Due to this fact, we believe it will be necessary to make plans early. We will book your orders now subject to prevailing prices for 1947. Just what may happen between now and another season we do not know, but prices can not be lower unless general conditions will permit. Since beginning of present season cost of production has soared due to advances in price on material and other items which had to be absorbed. This, of course, cannot be continued indefinitely and we feel that a slight increase in price on bees for the coming season will be necessary to maintain quality production. Otherwise, quality may be seriously affected.

Thanking all of you, old and new customers, for making this one of our greatest seasons. We trust we may continue to serve you with the best. Your patronage is always highly appreciated.

York Bee Company, Jesup, Georgia, U. S. A.

(The Universal Apiaries)

QUEENS QUEENS REQUEEN NOW!

Heavy honey production requires good queens. Beginners: Do not allow old worn-out queens to remain in your colonies over the winter. Requeen now.

Progeny-Test 3-Banded Italians of Highest Quality.
Also Mraz's Strain of high quality daughters of stock bred for resistance. Health certificate accompanies all shipments.

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Root QUALITY BEE SUPPLIES

For Michigan

Anticipate your needs for 1947 NOW and order early.

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We now have a good stock of Honey Containers.

We Want Your Beeswax

Paying 46c for dark; 48c for light.

NOTICE

Our office and warehouse will be closed from October 28 to November 1 for annual inventory. No business will be transacted during this period.

M. J. BECK CO.
Sucessor to M. H. Hunt & Son
510 No. Cedar St. Box 7
Lansing 1, Michigan

A VISITOR FROM NORWAY

(Continued from page 571)

creasing numbers and they are preferred for their gentleness, their better wintering qualities, and, like the brown bees, they cap their honey very white.

During the war years, beekeeping, as in many other European countries, received a setback mainly because of the shortage of help on the part of the beekeepers.

A great deal of Norway's vast forests were ruthlessly and carelessly timbered off or totally destroyed by enemy invaders. Plans are under way for reforestation but it will take years, perhaps hundreds of years, to make up for these losses.

Norway does not lack good beekeeping literature nor able leadership. Lunder's Hand Book in Beekeeping is a credit to any country. Gleanings congratulates the author and the beekeepers generally for leaders having vision.

Mr. Bergstu has been in U. S. since April and hopes to gain another season's experience in general honey production and in queen rearing before returning to the "Land of the Midnight Sun". Gleanings also congratulates this young man of vision and hopes that his stay in America may still further increase the universal feeling of friendship that has always existed between his country and ours.

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WHITE & AMBER EXTRACTED WANTED

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We use steam hydraulic wax presses that extract 100% of the wax and our rendering charges are very nominal. We charge only 2 cents a pound for wax rendered when your shipment of old comb weighs 100 pounds or more, 3 cents a pound on smaller shipments. Send for shipping tags.

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You save BIG money having your wax worked into foundation. Send for our money-saving prices.

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We thank our many customers for their patronage this season.
We are now booking orders for 1947

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Look for this Sign When You Want QUALITY AT LOW COST

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KELLEY — "The Bee Man"

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Write for prices, 25 or more. Young Three-Banded Laying Queens. Fresh from our Yards. Health Certificate with each Shipment. Shipped Daily from Paducah.

The Walter T. Kelley Co., Paducah, Ky.

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Situated in the northern buckwheat belt we produce our best queens in the fall months, giving very prompt service.

This has been a hard season on queens and much requeening is necessary to put each colony in shape for another season.

Whether a new or old customer, now is a good time to get

HOLLOPETER'S HEALTHY HUSTLING ITALIANS

Safe arrival and satisfaction guaranteed
Untested mated and laying queens:
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Commercial queen breeders since 1911

It is never too late - -

to get the help which is available to you in daughter queens of "DR" stock. It will be a real help in your fight to control American foulbrood.

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This stock has been improved each year by scientific selection. No other stock can offer the quality of parentage, of rearing methods, and of apiary testing service. So why not buy those queens which will give you the greatest value.

Write for shipping dates.

No change in prices for this season.

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Manufacturers of Bee Supplies
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